Trains

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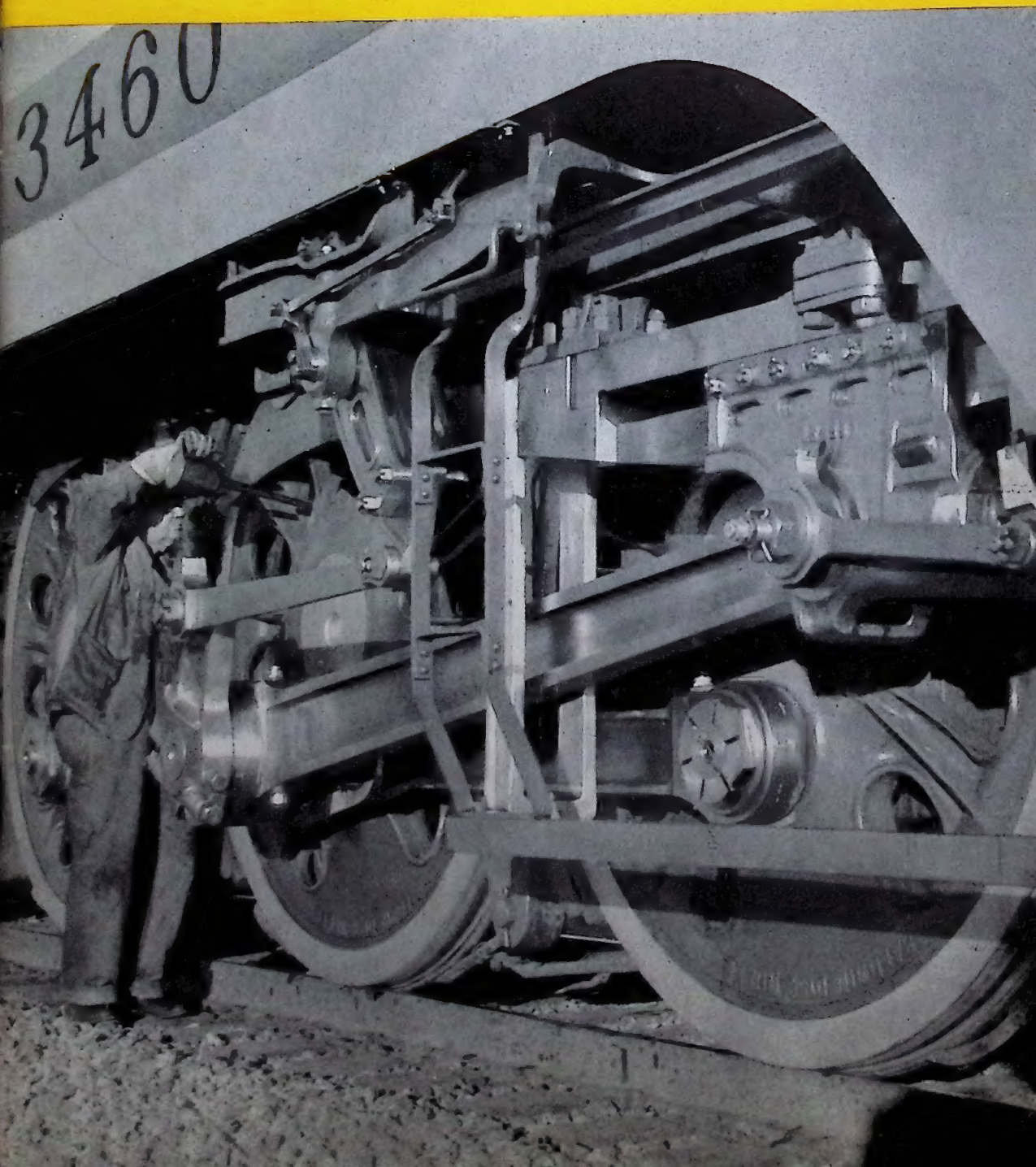


R. V. Nixon, 319 N. 3rd St., Livingston, Mont.

Smoke plume.

Like the genie that sprang from Aladdin's magic lamp, this feather of smoke emerges from the huge stack of Northern Pacific's famous No. 5000, its first Yellowstone type articulated locomotive. By a nose, it is still the largest ever built. Type 2-8-8-4; Class Z-5; four cylinders, each 26″ x 32″; steam 240 to 250 pounds; drivers 63″ diameter; tractive force 140,000 pounds or 153,400 with booster. This engine has a length of 125 feet with its tender. Class Z-6, a newer design with a 4-6-6-4 wheel arrangement, is a shorter engine but has a longer tender, making the two together 127 feet over all. For side view of Z-5 see page 35.

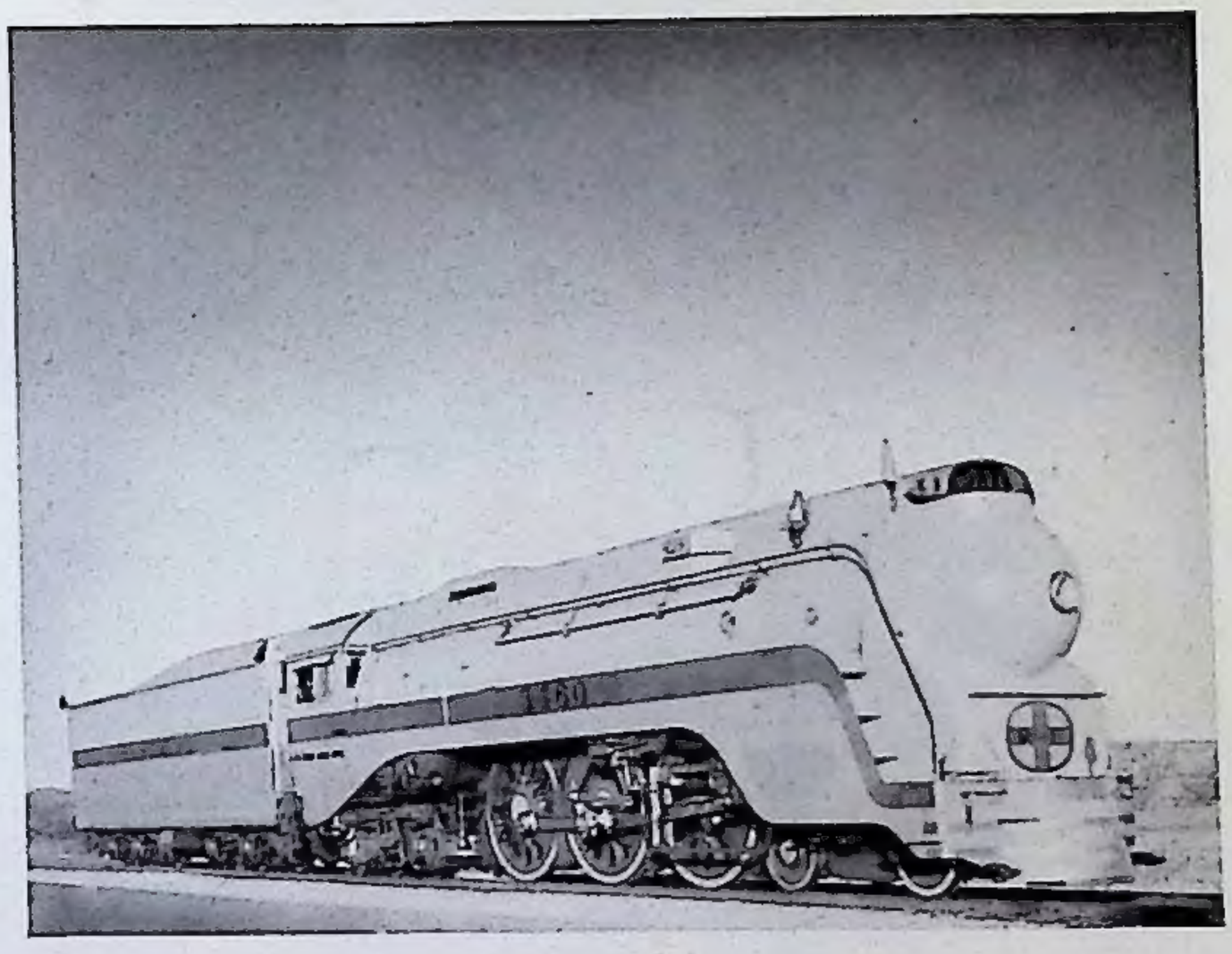
Waybills

Wholesale suspicion of railroad photography fans as fifth columnists seems to us rather silly. Most of us feel that any information to be obtained so openly has undoubtedly long been in the hands of any foreign government wanting it. However, the railroads are carrying materials which are vital to our national defense and they must take every precaution to see that nothing happens to these materials while in transit. This has been the reason in many cases for restricting access to railroad property. Railroad fans, realizing the present emergency, will, we are sure, cooperate and bear with any restrictions.

The Sacramento Northern story in the last TRAINS drew, as we expected, numerous protests from rabid steam fans. TRAINS is a railroad magazine and railroading includes electric as well as steam propulsion. TRAINS is covering without favoritism the entire field of railroad transportation. Street cars, of course, aren't railroading and won't be in TRAINS, but an electric line deriving a large part of its revenue from carload freight is certainly a railroad and deserves to be in TRAINS. Since electric operation is much less common than steam, it will receive proportionately less space, and we assure our readers that TRAINS, over a period of months, will never be lopsided in content.

TRAINS' editorial and business men consistently use railroad passenger service. And we help swell freight carloadings as well. Our paper comes by carload from the mill at Chillicothe, Ohio, via B&O and Milwaukee Road to our plant siding. Most outgoing magazines go railway mail, some Railway Express, and a few by freight.

A. C. K.



Trains

Editors: A. C. Kalmbach, Linn H. Westcott, Willard V. Anderson

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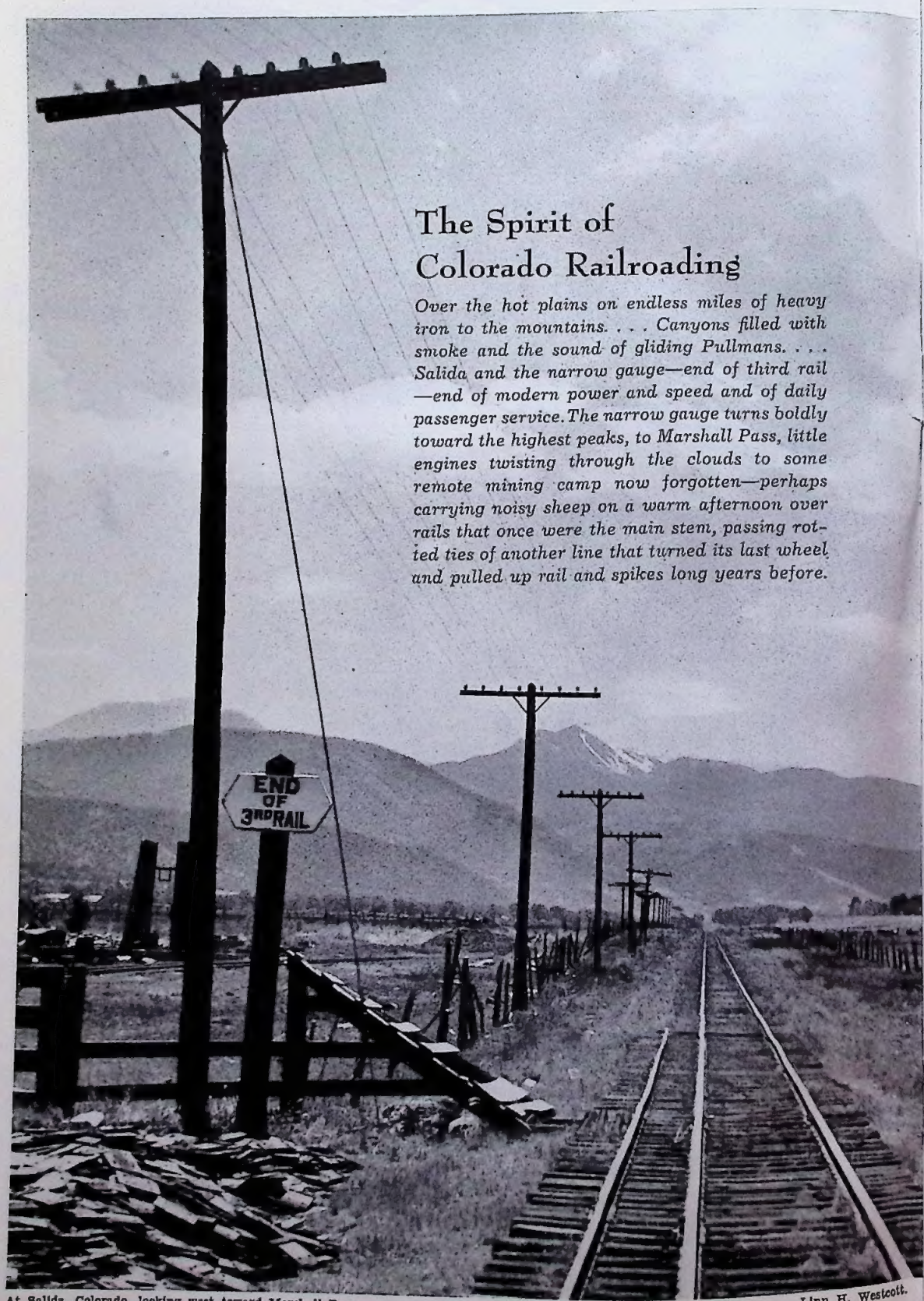


The Spirit of Colorado Railroading

Over the hot plains on endless miles of heavy iron to the mountains. . . . Canyons filled with smoke and the sound of gliding Pullmans. . . . Salida and the narrow gauge—end of third rail—end of modern power and speed and of daily passenger service. The narrow gauge turns boldly toward the highest peaks, to Marshall Pass, little engines twisting through the clouds to some remote mining camp now forgotten—perhaps carrying noisy sheep on a warm afternoon over rails that once were the main stem, passing rotted ties of another line that turned its last wheel and pulled up rail and spikes long years before.

At Salida, Colorado, looking west toward Marshall Pass. Linn H. Westcott.

Colorado Railroads

★ Why the railroads built into a wilderness of rock and snow, railroad operation, and notes for the traveler.

*By Linn H. Westcott.**

GEOGRAPHICALLY, the state of Colorado might be divided into three parts. The western quarter is a land of high plateaus cut by deep streams, a country that is dry, hot, and with little population beyond the reaches of a water faucet. The eastern third of the state is nearly level, flat prairie land; but the territory in between these belts—oh! In central Colorado are the most rugged mountains in the country; sharp ridges rising to over 14,000 feet cut only by passes rarely lower than 9000 and often as high as 12,000 feet. Between the ranges are deep valleys which guide swift rivers down their heavy gradients. In Winter the snows make much of this region all but impassable.

Into these mountains men have pushed a vast mileage of railroad, winding through canyon bottoms, clinging to rocky slides, tunneling through or climbing over sharp divides. Many times their builders had to resort to unusual methods to make the line feasible—narrow gauges, sharper-than-sharp curves, switchbacks and loops, steep grades and stub switches. With the increase in traffic some of the tracks have been broadened, relocated and relaid with heavy iron to make paths for the transcontinentals — big power echoing from the canyons where the little narrow gauge engines once coughed and struggled.

Colorado is a country of never-ending vacations, too! Scenery is unsurpassed, climates can be found to suit any taste. There are hot springs, cold springs, mineral springs; fishing, hunting, sports, photography, exploration. The attractions of city life are available, and unending possibilities are open to the railroad enthusiast.

*With considerable material from M. C. Poor, who has gathered an excellent file of historical data on the railroads of Colorado, and whose specialty is the Colorado & Southern's South Park line. R. H. Kindig and J. W. Maxwell also lent a helpful hand.

Very few railroads would have been built in the Colorado mountains had it not been for an interesting chain of events:

One hundred years ago, the country which is now Colorado was virtually unexplored. Zebulon M. Pike had explored some of the region in 1803, after the land was acquired in part by the Louisiana Purchase, but his men had only scratched the surface, discovering very few of the many passes through the mountains. In the forties Yankee statesmen discussed the possibilities of a transcontinental railroad to give the States access to the Pacific. A number of routes were quibbled over, but it seemed that a northern alinement something like the Northern Pacific would be chosen for the simple reason that California was not yet a part of the Union, and to run a railroad into foreign land was looked upon unfavorably by the legislators.

In 1848 California entered the Union and soon became a state. A year later gold was discovered in great quantities not far from San Francisco. The effect upon the United States was like an exploding bombshell. Easterners closed down their shops, purchased all the wagons that could be had, and started each Spring to work their way westward through the wilderness, hoping to reach the golden state before the following Winter.

This turn of events focused the railroad-minded to the San Francisco area, but the route through the Rockies was still much discussed, with two routes in particular getting the spotlight. One was the Pacific Railroad of Missouri, from St. Louis to what is now LaVeta Pass, over San Luis Valley to Cochetopa Pass (near the *M* of Marshall on our map, page 12) and then westward along the Gunnison River. The other was the present route of the Union Pacific, which Congress finally favored.

It was in this way that the Colorado region missed getting the Pacific Railroad, but just 10 years after the California rush, 1859, gold

L. C. McClure, 2128 Glenarm Pl., Denver, Colo.

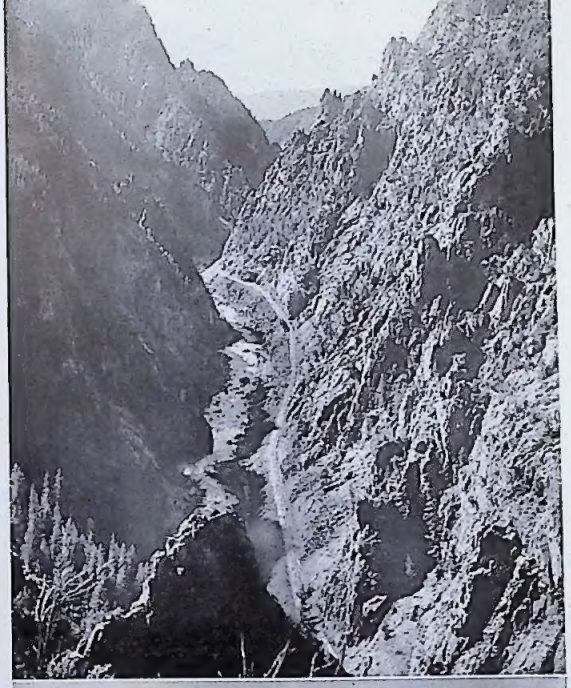
Florence & Cripple Creek through Phantom Canyon.

'Round and 'round she goes, and where she stops nobody knows. This is Lone Tree Rock, one of the many obstacles that must have driven the surveyors crazy when the line was being located, typical of Colorado railroad scenery. F&CC was three-foot gauge, and ran to take gold ore from Cripple Creek to smelters at Florence. It was abandoned because two other lines served the same territory and business dropped.

was discovered in the gravels of the South Platte River at the present sight of Denver. This cast another bomb into the pattern of things; by 1870, a year after the completion of the Union Pacific, the Denver Pacific Railroad was built to connect Denver with the main line, and the Kansas Pacific Railway reached Denver from the east.

It was at this time that the Denver & Rio Grande Railroad was born. It was the brain child of General William J. Palmer, a Philadelphia man, who had been toying with the idea of a narrow gauge railroad after seeing many in Europe. Palmer had established a record by building the last 150 miles of the Kansas Pacific in only 150 days. He started the D&RG southward from Denver in 1870 with three-foot gauge track, 30-pound rails, and plenty of sharp curves. The road was to extend eventually to Mexico City, beyond the Rio Grande River, to capture the supposed business that would be available along the mountain front. There wasn't any at the time, however.

In this first decade the D&RG had a very colorful history. It started southward all right, then needed coal, so it built a branch from Pueblo to Florence. Although the main line was originally planned to go beyond Florence to Salida, then southward, the actual



L. C. McClure.

Why railroad men grow gray hair.

Gore Canyon, on the D&SL, is only one of many defiles through which Colorado railroads have been threaded. And don't think Nature built that nice shelf the railroad uses, either. Plow is at Corona, old D&SL summit.

construction gave the road a main line toward El Moro, just east of Trinidad. A survey was made over Raton Pass into New Mexico, but before the company could get its tracks down, the Atchison, Topeka & Santa Fe, with apparently unlimited funds, came in from the east and captured the pass for all time. This event, along with the outcome of the Royal Gorge war, also with the Santa Fe, permanently turned the Rio Grande into an east-west line. The Royal Gorge war is a story too long to tell in detail here; briefly, the D&RG had a survey from Florence to Salida through a canyon so narrow that only one railroad could pass. When rich metals were discovered at Leadville in the seventies, the AT&SF also wanted to build a line to Salida and Leadville. Both companies started construction at the same time on each side of the narrowing gorge. The race involved many petty battles on the spot, and even more battles in the courts. The final decisions gave to the Rio Grande the line which the Santa Fe managed to build. Had the Santa Fe kept its line the D&RG might have died on the spot.

In the eighties the railroads expanded, the D&RG always with the greatest mileage. More companies approached the mountains from the east, and competitors built toward Leadville. In cooperation with the Rio Grande Western, a three-foot line was built all the way from Denver to Salt Lake and Ogden in Utah, going by way of Marshall Pass, Gunnison, and Grand Junction.

Another narrow gauge railroad that played an important part in the story was the line most often referred to as the South Park. It started for Pacific Coast points from Denver, crossing the D&RG at Buena Vista and reaching as far as Gunnison by 1882. Union Pacific acquired the line in its infancy along with the Colorado Central and others. More will be told about these later, but it is well to say here that the South Park built a branch to tap the Leadville mines in 1883, and that the Colorado Central served the mining territory directly west of Denver. Most of the trackage of this company was abandoned during the last 10 years.

Late in this 1880 decade, a new railroad, the Colorado Midland, decided to invade the slim gauge territory with a standard gauge line from Colorado Springs to Salt Lake via Leadville. This line was a great threat to the two Rio Grandes. Immediately the D&RG started to put down a third rail for standard gauge equipment on its lower-grade line to Grand Junction via Leadville while it was under construction. There never was enough traffic for both railroads, and the Midland struggled and was finally strangled with the help of the United States Railroad Administration in 1918, becoming the largest wholesale railroad abandoment up to that time.

In the nineties expansion was much slower, confined mostly to branch lines and to improvements, but during this decade one new railroad was born which, as the Denver & Salt Lake, later figured in the most important

improvement of the D&RG. This line boldly started off for Salt Lake, crossing the Continental Divide at 11,660 feet, higher than any other standard gauge railroad in the United States except the Manitou & Pike's Peak cog road. The D&SL now uses the seven-mile Moffat Tunnel, and although it never got to Salt Lake, its tracks are used by D&RGW trains for their new short line to Salt Lake.

Since 1900 many of the mines have been worked to their economic limit, and with them many of the branch lines were abandoned. Left to tell the story are the narrow gauge freight lines of the Denver & Rio Grande Western (result of consolidation of the D&RG and the RGW). Stories of the many railroads will undoubtedly be told in more detail one by one in the pages of TRAINS; for the present let's turn to the interest that is in Colorado today.

Colorado Vacations.

PERHAPS the best way to tell what Colorado offers to the rail-minded visitor and his family is to describe some of the invaluable trips that can be taken. [*N. B.*—To make the most of this material it is advisable to follow each trip on the map on page 12.] As for time of year, mountain trips are subject to weather conditions and are at their best from June to the following Winter.

Denver is the starting place for a great number of interesting jaunts. In the city and suburbs you will find heavy power of the Union Pacific, Burlington, Colorado & Southern, Denver & Rio Grande Western, Santa Fe, and Rock Island. Smaller locomotives of the Denver & Salt Lake and the Colorado & Southern narrow gauge lines also run into Denver. A morning's drive to the north (fairly level country) will bring you to the Great Western Railway, which runs a mixed train service over about 60 miles of track in the sugar beet region.

The best one-day trip by train from Denver is perhaps the freight run of the Colorado & Southern narrow gauge to Idaho Springs and Blackhawk. This is the last narrow gauge line in the area, except for the Denver Tramways and their interurban line to Golden. Permission to ride the train should be obtained and a ticket is necessary. At the time of this writing trains leave the yards early Wednesday mornings, chug to Golden and into Clear Creek Canyon. This line, like so many of the Colorado roads, was famous for its scenery and pulled many a sightseers' excursion train beyond Idaho Springs to the famous Georgetown Loop below Silver Plume. After winding through the canyon to Idaho Springs, where there are mills and where the sides of the valley are dotted with mines and prospects, the train returns part way to a wye at Forks Creek, then runs up to Blackhawk, near Central City, returning in the afternoon. It would take pages to describe all the interesting scenery on this trip.

If you cannot take the train it will still be worth your while to see this region by highway. Drive northwest on Highway 72, to arrive at the edge of the mountains by 9:30 a.m. Stop in the mouth of Coal Creek [see TRAINS, Dec. '40, page 4] to watch No. 1 of the D&SL smoke toward you, finally swinging behind you to dive into Tunnel No. 1. It will probably be pulled by a Ten-Wheeler. In the distance you will see No. 5, D&RGW's *Exposition Flyer,* approaching, but instead of waiting for it, pep it up and you can beat it to Pine Cliff to look down upon the train from a cliff, or to the East Portal of Moffat Tunnel, above Rollinsville. At East Portal you will also see the grade of the old line of the D&SL which went over the Great Divide at Corona; if you are lucky there will be some freight activity here too.

Go south on Highway 160 to Blackhawk on the C&S, where you will see stub switches in operation, placer mining, ghost houses, ghost mills, and the abandoned switchback that took the Colorado Central (now C&S) narrow gauge up to Central City. At the latter place is the famous Opera House where plays are given in the Summer. You can go to Idaho Springs via the direct road (not recommended for nervous drivers) or by the new highway past Forks Creek. This road follows both branches of the C&S, employing tunnels where the railroad did a snake crawl to avoid them. Forks Creek itself is worth exploring.

West of Idaho Springs the narrow gauge is abandoned, but the drive to Georgetown and Silver Plume is still worth taking. The valleys were gouged out by glaciers in days gone by and one can still see the peaks covered with heavy packs of snow on all sides. The route of the famous Georgetown Loop may still be picked out with a sharp eye, but the bridge and rails are gone.

An almost forgotten member of the Colorado railroad family is the Argentine Central or Georgetown & Gray's Peak Railroad. This was a narrow gauge switchback with seven per cent grades that used Shay and other geared locomotives to take sightseers to the top of Mt. McClellan, elevation 14,007 feet, just 100 feet lower than the Pike's Peak summit. It started at the Pavilion in Silver Plume and worked up the south side of the valley. Farther west is the roadbed by which the C&S intended to connect with Leadville via Loveland Pass, one of the many attempts to build a short line over this route. Go back to Denver via Lookout Mountain and Golden.

Between Denver and Golden there are two interurban lines. One is standard gauge, the other 3'-6" gauge, but both are the Denver & Intermountain. Cars on the narrow gauge are numbered with decimals, perhaps in accord with their size: .03, .04, .05, .06, and .07.

South of Denver there is a smattering of three-rail track on the C&S line to South Platte, the standard gauge stopping at Chatfields. Originally this was the main line of the Denver, South Park & Pacific, alias Denver, Leadville & Gunnison, a three-foot gauge line (as were practically all narrow gauge steam roads except the two-foot Gilpin Tram).

Another fine one-day trip may be taken from either Colorado Springs or Denver, and varied in many ways to suit your interests. Go south from Denver in the morning on the Santa Fe, Colorado & Southern, or Denver & Rio Grande Western; they all use the same track. At the Springs you'll really want to spend several days if you can, riding the cog road to the top of Pike's Peak and the Midland Terminal to Cripple Creek (train leaves at 8:30 a.m.). Return to Denver the same way you came or make use of the Train-Auto Service, driving west along the route of the old Colorado Midland, detouring into Eleven-Mile (or Granite) Canyon, where you drive through the railroad-built tunnels to a most beautiful granite canyon resembling Yosemite in miniature. It is little known but well worth seeing. At Hartsel you'll see an old Midland station now used as a house. You will then be in South Park, a level green plain rimmed with mountains on all sides—a really surprising sight. Work north to Fairplay, an old mining town; Como, division point on the old South Park, where the walls of the abandoned roundhouse are crumbling; Kenosha Pass and the North Fork of the South Platte, where the old roadbed is much in evidence. Mt. Morrison, almost back to Denver, was on the original line of the South Park built in

Famous Georgetown Loop, abandoned in 1939.

In the center is the High Bridge, below it the lower track of the C&S. The upper track, on a bow-knot loop, is located on one of the light colored fills in the distance. Georgetown is a short distance behind the observer, Silver Plume up the canyon about two miles. The Argentine Central line switchbacked up the south or left slope of this valley to McClellan. Both the AC and the C&S hoped to build from this point to Leadville, but never completed their lines since Argentine Pass has an elevation of 13,132 feet, Loveland Pass 11,992 feet above sea level.

L. C. McClure.

1874. Here and in Golden were scenic inclined cable railroads.

The most famous tour of the Colorado narrow gauges is the so-called Circle Tour. It takes a week or so to do it right but you can skip some portions by riding the railroad-affiliated bus line. To ride the caboose write to the railroad company in Denver for permission. This trip is to be described in more detail in a later TRAINS, so only a very brief account will be given here.

Starting at Salida, head west on the track shown on page 4, then south into Poncha Canyon, over famous Marshall Pass, 10,856 feet above sea level. From the pass you descend into the Gunnison Basin on the Pacific Slope. This is a drier valley with considerable mining carried on to the north. West of Gunnison you enter the famous Black Canyon, passing Currecanti Needle, which was featured on early heralds of the D&RG. Continue over Cerro Summit and down into the Uncompahgre region. This is a wide, dry valley made useful by irrigation. The standard gauge for Grand Junction starts here.

After an overnight stay at Montrose, ride south to Ridgeway, junction with the remote Rio Grande Southern Railroad. The D&RGW line continues up to the mountains at Ouray, another mining town.

The trip on the Rio Grande Southern is made in a converted auto-car that is peculiar to this railroad. Steam locomotives are reserved for freight use as an economy measure; as a matter of fact, this railroad was on the verge of collapse and was saved by just such planning as is evidenced in its rail car. You wind and twist and climb on the RGS, crossing three distinct summits—one, the Lizard Head, being at 10,250 feet elevation. Starting on the north side of the San Juan Mountains, the car works its way around the west side of the peaks and ends at Durango on the south. Nearby is Mesa Verde National Park, with interesting cliff-dweller ruins.

A caboose trip is worth an extra day if you can afford it, taking you to Silverton through the gorge of the Rio de Las Animas Perdidas, or Canyon of the Lost Souls. Silverton is the terminus of the Silverton Northern Railroad, in shape but not running, and was the end of the Red Mountain and the Silverton, Gladstone & Northerly. The Red Mountain went over Red Mountain Pass and down the other side to within a few miles of Ouray, but no rail connection was ever made through these

Rio Grande Southern moves lumber for Dolores, Colorado.

Steam locomotives on the RGS are mostly leased from the D&RGW and now used only for freight service, a rail car serving passengers except when the CCC boys charter a special train. This picture was taken last September near Rico, the point where the engine will be turned. Concrete piers replace timber.

Otto C. Perry, 74 S. Elati St., Denver, Colo.

Main lines

These are the main lines of the railroads in the state. You can reach Colorado from the east via UP, CB&Q, CRI&P, MP, and AT&SF; from the west, via UP, WP-DRG&W, and AT&SF.

Linn H. Westcott.

peaks. The Silverton formerly had a grade between Eureka and Animas Forks of over seven per cent. Even more unusual, the grade was operated with ordinary motive power.

Regular passenger service is still available between Durango and Alamosa, the last leg of the journey on the narrow gauge circle trip. Just south of Durango is the junction of the Farmington (New Mexico) branch. This isolated section of line was built with standard gauge track in 1905 as a competitive plan to connect the Southern Pacific with the South Park line. Two ten-wheel locomotives were shipped in for its operation until narrow gauge track was substituted in 1923.

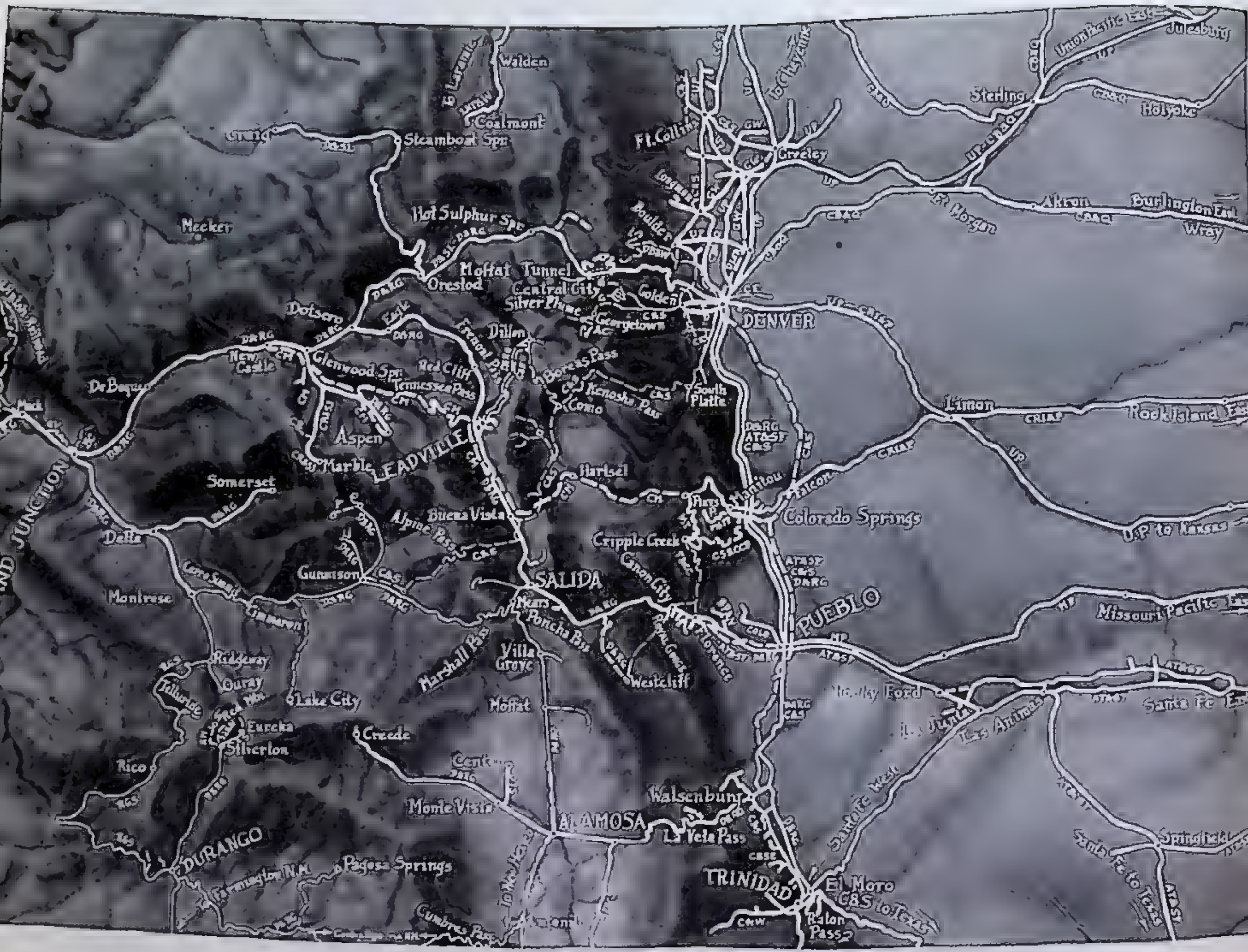
At Pagosa Junction there used to be a line to Pagosa Springs. The story goes that the sheep raisers stopped using the railroad branch in favor of an apparently cheaper method of transportation. With no traffic the branch line was torn up. Some time later Pagosa had a bad Winter, tying up the competitive transportation. The shippers lost far more in frozen sheep than the difference in cost of the two forms of transport. Last Winter sheep along the Rio Grande branch that runs from Antonito to Santa Fe were saved by the D&RGW from a similar peril, but this line is now scheduled to be torn up for lack of traffic.

The most interesting part of the last segment of the circle is Cumbres Pass and the Toltec Gorge. Here are the only tunnels on the D&RGW narrow gauge, and the line crosses the New Mexico-Colorado border eleven times. At Toltec the track is said to be over a thousand feet above the river, and this is perhaps the deepest gorge in the state.

Alamosa, like Salida, is an important division point with both narrow and wide gauge equipment in great varieties. One can ride the train via La Veta Pass to the east or go by bus to Salida, as train service to Salida is infrequent.

Another tour, standard gauge throughout, is ideal for a first trip to the state, and also is much more comfortable riding. It is perhaps the most concentrated and most beautiful assortment of scenery available by standard gauge main lines. Take the *Exposition Flyer* west from Denver in the morning, passing up into South Boulder Canyon and to Moffat Tunnel. This train follows roughly the route of the highway trip previously described to this point. On the west side of the tunnel you will enter Middle Park (in contrast to South Park, the word *park* usually meaning valley in Colorado), which is an arid valley at the headwaters of the Colorado River. At Bond and Orestod the train leaves the tracks of the D&SL for the Dotsero Cutoff, built 10 years ago. (Orestod is Dotsero spelled backwards; the two are on each end of the cutoff.) Before reaching Glenwood Springs the train passes through Shoshone Canyon, another beautiful gorge.

Glenwood Springs was first reached by the Colorado Midland. It is famous for its springs, Hanging Lake, and other features in the vicinity. D&RGW has a branch to Aspen which parallels the old Midland grade and connects with the Crystal River & San Juan, which goes to Marble, Colorado, where there are fine quarries. This railroad carried the



Linn H. Westcott.

Colorado has a vast network of standard and narrow gauge trade routes.

These are the railroads now operating in Colorado (solid lines) and the trackage no longer in use (dashed lines). While we don't claim infallibility, we've tried to show every line ever built that could be indicated on a map this size. (There are a few lines not shown because we have no proof as to their completion.) Besides these there were some 300 or more railroads that were built on paper, perhaps surveyed, graded, and even railed, but never operated. Mac Poor of Chicago sent us a list of 36 companies that filed papers to build from Denver to Leadville, some intending to continue to the Pacific. Ten projects headed for South Park, and more than 20 west from Boulder. On this map one inch represents about 60 miles.

stone for the Lincoln Memorial in Washington.

The return from Glenwood is made on D&RGW's *Scenic Limited,* also leaving in the morning. Retracing your route to Dotsero, the train then follows the Royal Gorge route, the main line for years. It now shares its importance with the Moffat Tunnel route.

Mines will be seen high above the tracks at Red Cliff. Here the westbound tracks are on the opposite side of the river. A sharp eye can follow the line of the narrow gauge track which went over the summit at Tennessee Pass. Here the train crosses the Continental Divide in a tunnel elevation 10,238 feet, entering the valley of the Arkansas River. To the left is Leadville, five times a boom town, producing first gold, then silver, lead, copper, and finally zinc. The same gravels were worked over for each of the newly discovered metals. In Fremont Pass to the northeast is Climax, once on both the C&S and D&RG narrow gauge lines. This is now an important molybdenum source, and an isolated section

Map data.

Some facts about the railroads of Colorado.*

AC—Argentine Central, alias Georgetown & Gray's Peak. This steep line operated from Silver Plume to the summit of Mt. McClellan. A line over Argentine Pass was projected to connect with Keystone on the C&S, but never built. Three-foot gauge, abandoned. The line was 100 feet lower at its summit than the Pike's Peak railroad.

AT&SF—Atchison, Topeka & Santa Fe. Main line to California cuts southeast corner of state. New lines have been built very recently in same area. Also runs to Denver.

BC—Book Cliff, three-foot gauge; abandoned. Served coal mines.

BP&N—Beaver, Penrose & Northern. Abandoned standard gauge line.

C&S—Colorado & Southern. Narrow gauge included South Park and Colorado Central Lines. Once Union Pacific. Built to Mt. Morrison 1874, Gunnison 1882, Leadville 1883, Georgetown 1887, and Silver Plume about 1880. Most of the lines have been abandoned for lack of business, bad grades, curves, and for twice crossing the Great Divide to reach Leadville. Standard gauge, Burlington-controlled line from Cheyenne, Wyoming, to Texas. Lines between Denver and Pueblo were abandoned for trackage rights on AT&SF-D&RGW.

C&SE—Colorado & South Eastern. Coal road near Trinidad.

C&W—Colorado & Wyoming. This line operates in three disconnected divisions: one (built about 1900) shown near Trinidad on map, another at South Pueblo, and the third in eastern Wyoming. Friendly with the Burlington.

CB&Q—Chicago, Burlington & Quincy. From Midwest to Denver. Controls Colorado & Southern.

CE—Colorado Eastern; was a coal road a few miles east from Denver. Three-foot gauge, built 1886, ceased operation in 1915 and abandoned 1918.

CM—Colorado Midland, ambitious road planned to reach Salt Lake. Thwarted by competition and lack of business. Built in 1887 using joint track with D&RG to reach Grand Junction. Early controlled by Santa Fe, later by Colorado & Southern, finally by D&RG. Largest abandonment when removed in 1918. Standard gauge.

Colo.—Colorado Railroad, formerly Colorado-Kansas. To Stone City near Pueblo.

CR—Crystal River, predecessor of CR&SJ.

CR&SJ—Crystal River & San Juan. Standard gauge line to marble quarry.

CRI&P—Chicago, Rock Island & Pacific. From the Midwest to Denver and Colorado Springs.

CS&CCD—Colorado Springs & Cripple Creek District. Also known as the "Short Line." Standard gauge built in 1901, abandoned 1922-23. Now a beautiful highway.

D—Denver & Intermountain, standard gauge line operated by trolley to Golden. See also T. Do not confuse with Denver & Interurban, which used C&S tracks to Boulder. Also trolley.

D&RG—The railroad that has made Colorado what it is. A network of lines in both gauges. Built from Denver southward, 1870-71. See story.

D&SL—Denver & Salt Lake, the "Moffat Road." Planned to reach Utah points but construction ceased at Craig. Main line is now used part way as alternate route for D&RGW trains. Line now runs through Moffat Tunnel but once went over the top, being the highest standard gauge line for through traffic.

DB&W—Denver, Boulder & Ward, alias Colorado & Northwestern and other names. Three-foot gauge mining line called the Switzerland Trail. Abandoned in 1919.

DL&NW—Denver, Laramie & North Western. Built from Denver to Greeley in 1909 but ran out of funds while extending to Ft. Collins. Abandoned in 1916-17 except for portion now used by Great Western. Built a never-used tunnel in Wyoming on the way to Laramie.

F—Floresta. Served coal mines north of Gunnison.

F&CC—Florence & Cripple Creek. This much lamented narrow gauge pike was built to the Cripple Creek mines in 1894, later acquired the CS&CCD. Abandoned in World War I period. Now a highway.

G—Gilpin Tram, two-foot gauge line serving the mines in Gilpin County from Blackhawk to Russell's Gulch via Central City with many branches. Not much left to show the route of this line.

GV—Grand Junction & Grand River Valley electric line to Fruita. Was controlled by Colorado Midland as possible western outlet. Abandoned early in thirties.

GW—Great Western, freight hauler in the sugar beet region.

LNP&W—Laramie, North Park & Western, alias Laramie, Hahns Peak & Pacific, also Colorado, Wyoming & Eastern. Another line that headed for Salt Lake and never got there. Now controlled by Union Pacific. Runs from Laramie into North Park. Standard gauge.

M&PP—Manitou & Pike's Peak ("The Cog Wheel Route"). Scenic railroad to the top of Pike's Peak. Built in the nineties and still going strong, it now runs both streamlined Diesel cars and older steam power. Standard gauge with double rack rail in center.

MP—Missouri Pacific; runs through trains from Midwest to West via D&RGW and Western Pacific.

MT—Midland Terminal, only line left to Cripple Creek mines. Uses CM tracks in Ute Pass. Standard gauge; beautiful scenery. Built 1893.

RG&PS—Rio Grande & Pagosa Springs. Data incomplete. May have constructed line to Chromo and toward Pagosa Springs. A company with the same name built D&RG's line to Pagosa Springs at an earlier date.

RGJ—Rio Grande Junction Railway, not initialed on map. This was the trackage between Rifle and Grand Junction built and operated jointly by the Colorado Midland and D&RG from 1890 until the Midland was abandoned. Now D&RGW track.

RGS—Rio Grande Southern. Built in early nineties to connect Durango with the North. Three-foot gauge.

RM—Silverton, commonly called the Red Mountain, three-foot gauge; first line out of Silverton. Built in 1890-91, abandoned in 1911. Managed by Otto Mears, who built this line, the Silverton, the Rio Grande Southern, and the Chesapeake Beach (in Maryland), and who operated the Silverton, Gladstone & Northerly.

S—Silverton Northern, three-foot gauge. Still in running condition but not in use. See also RM.

SG&N—Silverton, Gladstone & Northerly, three-foot gauge. See RM.

SLC—San Luis Central, standard gauge line. Serves sugar industries.

SLVS—San Luis Valley Southern, standard gauge. Carrier stock and agricultural products.

T—Denver & Intermountain narrow gauge trolley line, 3'-6" gauge, Denver to Golden. Was Denver & North Western. Has a branch to Leyden. See also D.

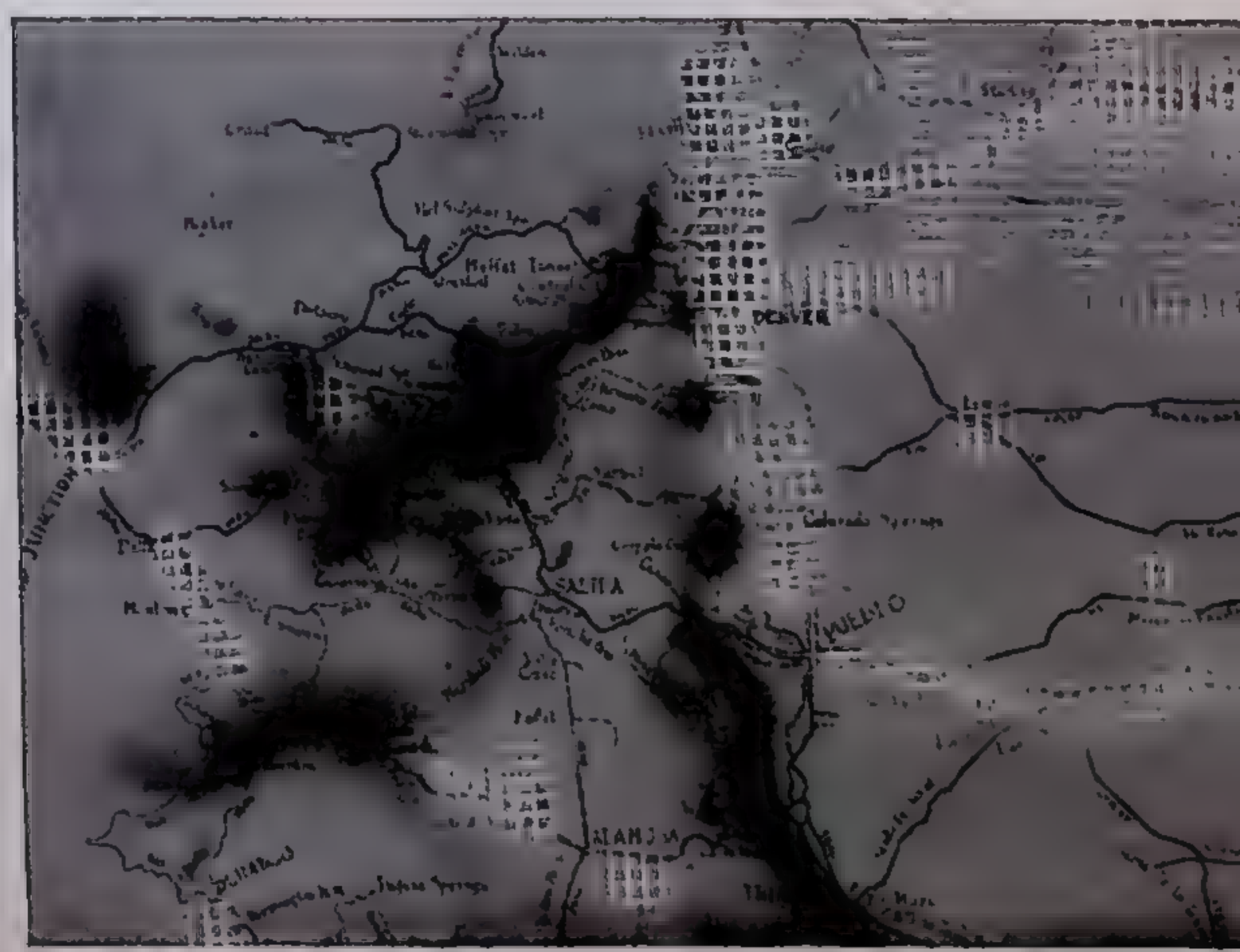
U—Uintah Railroad, three-foot gauge line. Outlet for Gilsonite mines in Utah. This line was controlled by the Colorado Midland in an attempt to extend its line westward. It was the only narrow gauge common carrier using articulated locomotives. Abandoned recently.

UP—Union Pacific, from Midwest via two routes to Denver, and to West through Wyoming. Serves points in sugar beet region north of Denver.

*Map data is made possible by extensive research on the part of M. C. Poor with further assistance from R. H. Kindig and John Maxwell.

Colorado resources.

This map indicates Colorado mining areas in dark tones and cultivated land districts in light cross-hatching. With this map as a guide to sources of railroad traffic, and the relief map on the other page as an indication of where a railroad may and may not go, you can see why most of the lines were built. Colorado agriculture is largely grains, alfalfa, corn, potatoes and sugar beets. Mining is mostly for coal, oil-shale, lead, zinc, silver and gold. Notice that mineral belts make patterns, and they also follow the topography.



Linn H. Westcott.

of C&S narrow gauge connects Climax with Leadville.

To the west is Hagerman Pass, once crossed by the Colorado Midland on its way to Glenwood Springs. The grade of the Midland can be seen all the way to Buena Vista, where it turned up Trout Creek toward Hartsel. The C&S line from Denver came down this same canyon, crossed the Rio Grande near Nathrop and climbed the Sawatch Mountains on the west to Alpine Tunnel.

A little after two o'clock you will approach the famous Royal Gorge. This is the scenic accent of the return trip and it was in this narrow defile that the Royal Gorge war was fought with the Santa Fe. Hanging Bridge, near the middle of the canyon, was built to support the narrow gauge tracks from the walls of rock. The railroad company has so reinforced the bridge that it still has its original appearance.

The train will reach Denver via Pueblo and Colorado Springs by early evening.

Worth mentioning, besides the trips just outlined, are the following:

Driving over the roadbed of the Florence & Cripple Creek on Highway 67.

Visiting the canyons above Boulder, where the narrow gauge Denver, Boulder & Ward ran until 1919. This was called the Switzerland Trail of America.

Driving through Carlton Tunnel near Leadville. This was the second tunnel built to get the Colorado Midland over Hagerman Pass, reducing the elevation to 10,948 feet.

A hike from St. Elmo, near Buena Vista, to Alpine Tunnel, 11,596 feet elevation.

Linn H. Westcott.

Colorado Railroading

THE most interesting stories of the Colorado railroads are about the varied practices in operating trains which to the plainsman seem nearly unbelievable. Double-headers and pushers are so common that a train with only one engine actually becomes a rarity on many lines. Take the Midland Terminal for instance: last Summer my wife and I waited for the nightly freight to go by our cabin at Green Mountain Falls. For a long time everything was still, save for a slight breeze and the muffled rush of the river running by the tracks some hundred yards below us. Since one cannot guess the train time very closely (it depends upon the amount of switching to be done at Colorado Springs), there was considerable waiting before we could hear the faint but snappy notes of a chime whistle. It was 10 minutes or more before we saw the headlight shining through the trees three miles downstream near Cascade. By this time the chugging and straining sounds of the engines could be heard, puffing sometimes all in unison and then in a great confusion as though each locomotive wanted the credit for doing the work.

As the first engine crossed the dusty grade crossing just below us the lights of waiting automobiles played upon the drivers and side rods of the little Consolidation. (All MT locomotives are Consolidations; its parent, the CM, also had Ten-Wheelers and one switcher.) There were 64 cars in that train, mostly empty gondolas, yet the grade is so tough —four per cent in places—that six locomotives were scattered throughout the train —one on front, one spaced about every tenth car or so, with the sixth loco by the caboose. As the auto headlights lighted up the wheels of the passing cars, we noticed

Railroad vacation trips.

This map shows the trips by rail recommended to the railfan and his travel-minded friends. At the top is the standard gauge circle trip, best if it is your first visit to the state. Lower left is the narrow gauge circle taking several days. One-day trips on the C&S from Denver and on the Midland Terminal from Colorado Springs, and the half-day Pikes' Peak trip are shown.

Currecanti herald.

When the narrow gauge track through Black Canyon was the main line to Salt Lake, the D&RG herald depicted the Currecanti Needle. Later designs had a picture of Hanging Bridge, and now words replace the picture.

the dizzy little white marks, one on the rim of each wheel of the MT cars. Later we were told that these marks enabled trainmen to look ahead to be sure all the wheels were revolving on the downward trip.

This train had very few box cars, a great number of MT gondolas running up to Cripple Creek for ore from the gold mines at Victor, and about half as many steel hoppers of the Rock Island to bring back gravel for ballast and other uses.

The train didn't return until early morning, this time with only two of the engines, just enough to supply the air needed for brakes. The other locomotives had gone down hill light, at 15-minute intervals from each other.

South of Denver we were lucky enough to see one of the Colorado & Southern narrow gauge trains on what was left of the main line —lucky, because this train runs about once every two weeks. It was double headed with two of those little dwarfs with the cinder pipe running from the stack to the wheels on the left side. We followed it along for several miles to a siding. Here the front engine uncoupled, went ahead, backed into the siding and pulled out a wide gauge freight car just like Jack Horner's plum. These narrow gauge engines can do this because they have a special coupler arrangement for the purpose; they pull both wide and narrow gauge cars on three-rail track.

Stub switches are still in use on the C&S, and on the D&RG they may be found at Silverton. They are not only a throwback from the days when split switches were a curiosity, but they are more practical in the heavy snow regions. No ice can collect between point and stock rails.

Much of the twisted trackage of Colorado now belongs to the days gone by, but there are still a few wiggles worth mentioning here and there:

Trains from Salida and Alamosa are rather infrequent but the line is the only connection the D&RG has between the northern and southern narrow gauge lines. The junction from the northern line is at Mears, on the slopes of Marshall Pass. Here the branch line swings to the north side of the main, climbs a steep track only to loop to the left and right over the main line, turning eastward for a way before resuming its southern direction.

At Leadville there is a crossing of D&RG tracks over C&S tracks. Each line is three rails over the crossing, requiring nine frogs in its construction, but the C&S uses only its narrow gauge track and the D&RG only the standard. Five frogs are unused.

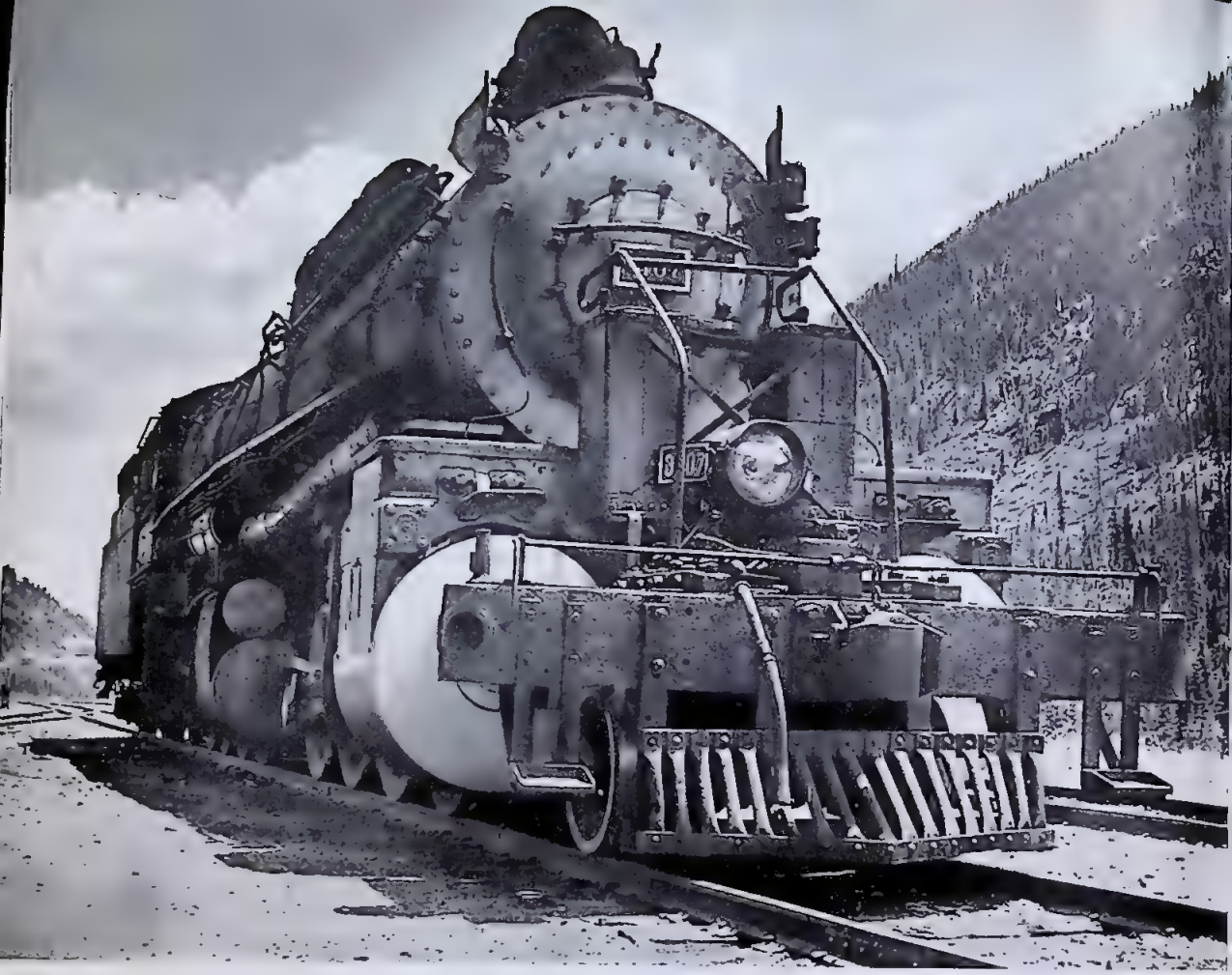
More interesting were some of the track arrangements of the lines no longer in use, the Georgetown Loop being the most famous of these; the Denver & Salt Lake had another loop around a spur of the mountain on the western slope of its old line over the top.

Another kind of loop was used at some points in place of wyes or turntables. These were called balloons because their appear-

Currecanti Needle.

You are looking east toward Currecanti Needle in famous Black Canyon of the Gunnison River. The engine is pulling the daily freight from Gunnison to Cimmaron on a turnabout run. Another locomotive will meet the train at Cimmaron to hump the cars, only a few at a time, over the Cerro Summit to Montrose. The Needle is claimed to be over 800 feet above the river and this architectural feat of nature is comprised of solid granite.

John W Maxwell, 1416 Pennsylvania St., Denver, Colo.

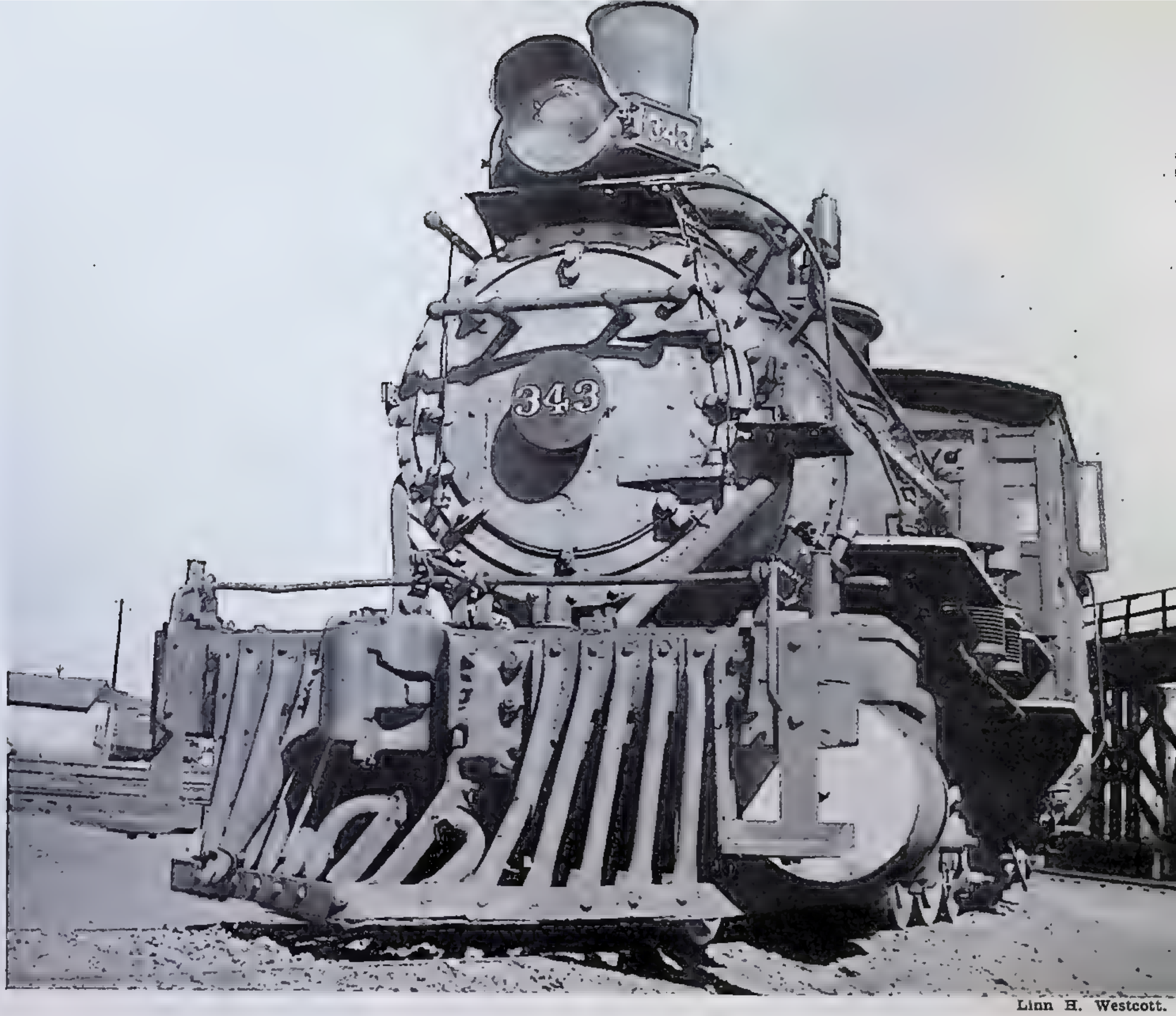


Linn H. Westcott.

ance on a map resembled a balloon. There was one on the Lake City branch of the D&RG, another at Cripple Creek on the Short Line, and still another near Silverton. Wyes were much more common than turntables because there was little maintenance except for the switches. At the top of Trout Creek Pass east of Buena Vista, both the C&S and the CM had a wye, and the two nestled into each other very snugly.

There used to be a few switchbacks on some of the branch lines, the most famous being the one between Blackhawk and Central City. The two towns are only a mile or so apart, but Central City is so much higher that the railroad took four miles and two switchbacks to get there. Going up, the main followed the bottom of the canyon through Blackhawk, backed up the first switchback, over a mile long, then went forward again. The middle leg of this ladder crossed over the main street on a viaduct. They used to advertise that passengers could walk down the hill and beat the train. Another switchback was located on the Silverton near Red Mountain. This one was equipped with a turntable and a few stub tracks beyond it, just room enough to turn the locomotive and get it on the other end. Switchbacks were used to avoid expenses of heavy earthwork.

Hairpin or bow-knot loops were very common and appeared on nearly every narrow gauge approach to a summit and many of the standard gauge lines as well. The granddaddy of them all, however, was probably that of the Colorado Midland over Hagerman Pass. Originally the line looped up to the top with four complete hairpins, and there were others on the same line within only a few miles. The whole ladder was called the Midland Loop. The original Hagerman Tunnel at the summit was at an elevation of 11,528 feet, and the railroad experienced great difficulty trying to keep it open through the



Linn H. Westcott.

These haughty haulers could tell many a railroad tale.

No. 3407 is a genuine Mallet with huge low pressure cylinders in front, waiting at East Portal of Moffat Tunnel after doing pusher duty. Wheel arrangement is 2-8-8-2, Class L-95, cylinders 26″ and 40″ x 32″, drivers 57″, steam 200 pounds, tractive force 95,000 pounds; built in 1913 by Alco. The retired narrow gauge Consolidation, No. 343, was built in 1881 by Baldwin, and is now as old as any of the engines to be found on the railroad property. It was standing without side rods at Alamosa last Summer. Class C-19, cylinders 16″ x 20″, drivers only 36¾″, steam 160 pounds, tractive force 18,947 pounds (about one-fifth the power of 3407). The drivers on this type locomotive are about the size of standard gauge passenger car wheels.

Winter. One year when the snows closed it up it was many weeks before service could be resumed, and all the traffic was diverted via competitor D&RG to the north.

To overcome the expensive operation on the loop, some of the Midland people built a new tunnel, nearly two miles long, between Busk and Ivanhoe, and at some 500 feet less altitude. This not only eliminated the loops but shortened the line as well. After the railroad used it for a while, the tunnel owners became angry about a reorganization of the company and refused to let the Midland use the tunnel. For a year and a half trains again went over the top with a perfectly good tunnel below them. A similar state of affairs existed for a while with the Moffat Tunnel, a City of Denver project.

Main line railroad operation is now more or less as would be expected, but helpers are used on the Tennessee Pass grades and at Moffat Tunnel. On the plains speeds are faster, iron is heavy, and it is not uncommon to see the streamliners of the Burlington, Santa Fe, Rock Island, and Union Pacific doing their stuff. The main line of the UP touches the northeast corner of the state, the Santa Fe crosses the southeast, and the Burlington, Rock Island, Missouri Pacific, and Colorado & Southern terminate in the state.

Rich Road, Poor Road

★ **Florida East Coast Railway is unique among bankrupt roads of the nation.**

*By Harold M. Mayer.**

CONSTRUCTION of the Florida East Coast Railway represented the close of an era in the history of American development. It was one of the last of the pioneer railroads to be built. Like most important roads, it was built into its territory in advance of the population. Then began the expansion of a new frontier. The railroad had a virtual monopoly of all of the traffic which grew out of the rapid development of the region.

Yet today the railroad is far from prosperous. In receivership for 10 years, it stands in marked contrast to many of the railroads which were similarly blessed with the advantages of priority. The FEC serves one of the most highly developed resort regions in the world; a region which supplies a very large part of the national supply of many vegetable products; which supplies an important part of the nation's forest products, a commodity traffic that usually means prosperity to the lines which haul it; a region which is primarily one from which resources and foodstuffs are shipped, and manufactures brought in.

This complementary traffic of produce, raw materials, manufactures and tourists would, seemingly, mean prosperity. In 1938 the 685 miles of road earned an operating revenue of $14,000 per mile, higher than the national average. Yet the company had a net deficit of almost two million dollars. The line is in good physical shape, and the operating expenses are relatively low. How, then, can one explain the predicament of the road?

To begin, one-third of the railroads of the country are in the hands of the courts, and another third are nearly in that condition. The Florida East Coast is far from unique in that respect. Yet with its facilities serving a territory just recently developed, and with relatively dense passenger as well as freight traffic, the plight of the other roads is not analogous to that of the FEC.

In order to understand the condition of the road one must see how the region developed and what the relation of the railroad has been to this development. Only in this way will the present problems become apparent.

Popular belief holds that the idea of a railway to develop the east coast of Florida originated with Henry M. Flagler. Although the work was actually accomplished by him, the idea was not originally his. The Great Southern Railway Company was chartered in Florida as early as 1870 to construct a railroad through Florida, along the Kississimmee River to Lake Okechobee, thence to the east coast, to the southern tip of the peninsula, and across the keys to Key West, where connection was to have been made with steamships to South America, Panama, and the West Indies. The southernmost third of the line was to have followed almost exactly the same route which Flagler used. Attempts were made to secure government subsidies, but these were unsuccessful, and the enterprise was abandoned after construction had begun.

The primary purpose of the road was to furnish a route for through traffic between northeastern United States and the Tropics. The studies made in an attempt to estimate potential traffic clearly show that little was expected of Florida. The road was planned as a bridge which would carry a large volume of through traffic but which would originate and terminate very little.

During the period between the abandonment of the early plan and the beginning of the present system, peninsular Florida grew very slowly. People were not interested in settling or investing in a region which they believed to be a land of swamps, mosquitos, heat, and fever. The Great Plains of the West were far more attractive. The few settlers in Florida engaged in subsistence agriculture.

*Geographical research expert on zoning for the city of Chicago.

Courtesy Florida East Coast.

Henry M. Flagler: A valiant attempt to keep up with the times.

Named for the founder of the once-prosperous road, the *Henry M. Flagler* serves Florida-bound Winter vacationists as well as any of its sister streamliners on other roads. A typical Florida publicity photo is this, with its Summery skies and just a hint of a palm tree visible in the upper left-hand corner.

Travel was largely by water. The many lakes and rivers, and particularly the protected Indian River lagoon behind the barrier beach on the east coast, provided the settlers with their almost only contact with the world.

In 1883 a narrow gauge railroad connected Jacksonville, a city of 2000, with St. Augustine, scarcely larger. There were no other settlements of importance along all of the Florida east coast. Daytona was a frontier community of about 200. Far to the south, on Biscayne Bay, was a small settlement around Ft. Dallas, a military post established during the war with the Seminole Indians in 1836 which was still maintained by a small detachment. A small fort at Key West, protecting the entrance to the Gulf of Mexico, completed the list of settlements on the Florida coast.

THE rapid transition of Florida from a pioneer region was in large part due to Flagler, who, as one of the partners of the Standard Oil Company, had accumulated a large fortune. While visiting St. Augustine in the Winter of 1883–1884, he decided that the historic old city had great possibilities as a Winter resort. He built two huge hotels, the Ponce de Leon and the Alcazar, which attracted wide attention because of their size and the beauty of their architecture. An influx of wealthy vacationists in 1885, the first year of their operation, assured the success of the hotels and stimulated interest in the development of the northern part of the Florida east coast.

St. Augustine, at the time Flagler awakened it from stagnation, was at the end of a narrow

Courtesy Florida East Coast.

First Florida East Coast train into Miami: 1896.

Miami in 1896 was as new as the railroad at that point. Founded by Flagler as another of a chain of Winter resorts and complete with its Flagler Hotel, Miami had a population of 5000 exactly six years later.

gauge line from Jacksonville, known as the Jacksonville, St. Augustine & Halifax River Railway. Flagler realized the line would be inadequate to carry the large number of vacationists and the traffic they would develop. He purchased the railroad, enlarged it to standard gauge, and purchased modern equipment. This, the beginning of the Florida East Coast Railway, was a direct outgrowth of the resort development at St. Augustine.

The varied gauges of the railroads throughout the South had been gradually converted to a single standard, and in 1888 it was possible to make the entire journey from New York to Jacksonville over standard gauge. The first through train, predecessor of the *Florida Special*, began operation into Jacksonville, and the wisdom of converting the St. Augustine line to standard gauge was then readily apparent, since through trains could be operated directly to the newly built resorts.

Flagler soon realized that all of the hundreds of miles of barrier beach, lagoon, and shore line offered resort possibilities similar to those at St. Augustine. The railroad was gradually extended southward, and more hotels constructed. A small narrow gauge logging road, the motive power furnished by mules, operated between St. Augustine and Tocoi, on the St. Johns River, a distance of 15 miles. Flagler bought the line, rehabilitated it, converted it to standard gauge, and extended it to Palatka, giving that settlement access to wider markets and beginning the development of the great naval stores industry of Florida which today furnishes a large part of the traffic on the FEC. Settlers soon found the soils in the vicinity of Hastings excellent for the growing of potatoes. The railway, through connections, enabled these potatoes to reach the Northern markets before potatoes grown farther north matured.

The rapid development of his resorts, the beginnings of commercial agriculture along the railway, and the increased production of forest products encouraged Flagler to examine the possibilities of the entire east coast. The climate, soils, and location were ap-

parently ideal for an intensive commercial development, and the railroad was rapidly extended farther south. In 1890 the rails reached Ormond and Daytona, which immediately began to develop as resorts, centering about the new Flagler hotels.

The rail extension opened the Northern markets for the subsistence farmers who until then had been unable to market any surplus which they could have produced. Flagler organized land companies to speculate in lands to the west of the railroad. These areas were largely timbered, but had flatwood soils which could easily be fertilized. The long growing season permitted two crops a year. The clearing of this land created a large timber traffic for the railway, and the draining of it resulted in movement of supplies southward. Fertilizer and manufactured goods moved south, and lumber moved north, supplemented by farm products in season.

Palm Beach and West Palm Beach, spreading for several miles on opposite shores of the barrier lagoon, were given birth by the coming of the railroad and another Flagler hotel. All along the coast similar resorts were called into being. In almost every one the railroad formed the axis around which both the towns and the inhabitants revolved.

Most spectacular of all these resort establishments was Miami. It was founded by Flagler in 1896 merely as another resort, not very different from the others. Yet its growth was far more rapid than that of any other. By 1902 its population had reached 5000. Proximity of the Gulf Stream, the beauty of the lush tropical vegetation, and the influx of farmers all explain this rapid growth. Many growers of citrus fruits moved to the vicinity of Miami as soon as the rails reached that point, hoping for freedom from frost hazards to their crops. The Flagler hotels soon made the city a famous Wintering place.

Up to this time, almost every point which the railroad reached burst forth with prosperity. Each new resort, each new timber property, each new farm contributed ad-

St. Johns & Halifax RR., now part of FEC system.

This bit of tropical wilderness was Daytona Beach in 1886. The narrow gauge SJ&H, 50 miles long, connected Daytona Beach with Rollstown (now East Palatka). The engine, *Bulow*, was built by Baldwin (1883).

Collection of D. W. Furler, 65 Glen Ave., Glen Rock, N. J.

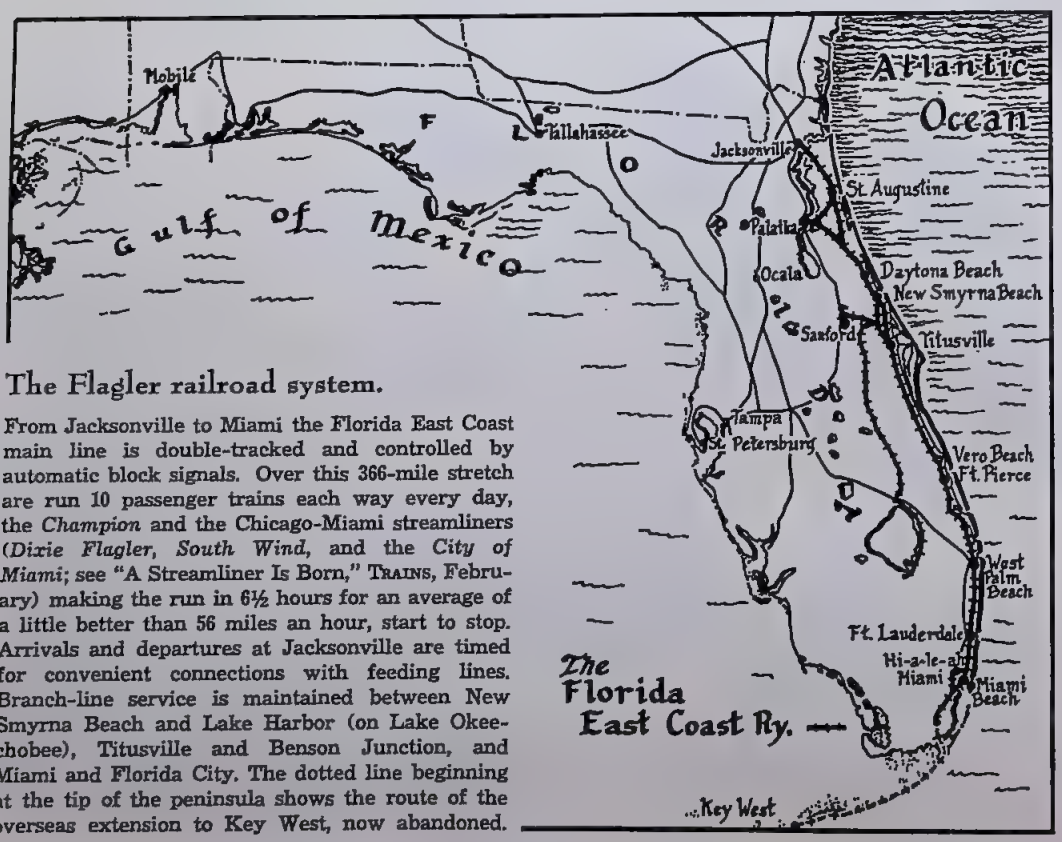
ditional traffic to the ever-increasing flow on the railroad. And then Flagler made his first mistake.

After the rails reached Miami, Flagler saw that with an extension to Key West they could carry a share of the traffic between the United States and the tropical lands of the Carribean. Key West was a city of about 17,000 population, larger than any other along the railway except the Northern terminus. It already had an important cigar industry, and was noteworthy for its sponge fisheries.

Construction of the railway to Key West involved many engineering difficulties. Between Miami and the northernmost of the keys, the line was built along the edge of the Everglades for 30 miles, by excavating parallel canals and piling the material between them to form an embankment. The keys themselves, being a series of coral reefs, offered a firm foundation for the roadbed, and the channels between the keys were sufficiently shallow to permit the construction of bridge piers within relatively easily-built coffer dams. The 130-mile overseas extension was opened in 1912, and construction was begun on docks and terminal facilities for a steamship line which was to run from Key West to Havana. In 1915 a car ferry, the *Henry M. Flagler,* was placed in service. Meanwhile, Flagler had died, at the peak of expansion and prosperity for his railroad.

The expected prosperity for Key West did not materialize. Its population actually declined from 20,000 in 1910 to less than 13,000 in 1930. There were three reasons for this. First, the traffic moving through the port was largely through traffic moving in sealed cars, requiring little handling or labor at the docks. Second, the principal industry, cigar manufacturing, shifted to Tampa, where it could take advantage of shorter distance to market and lower rail rates, and to Havana, where the new car ferry service furnished transportation to markets but still permitted the manufacturing to take place near the source of materials. Finally, Key West had practically no hinterland, being on a small island, and could not compete with Miami, which rapidly developed into a trade center.

During the period from 1915 to 1925 the FEC was doing rather well, as commerce and



The Flagler railroad system.

From Jacksonville to Miami the Florida East Coast main line is double-tracked and controlled by automatic block signals. Over this 366-mile stretch are run 10 passenger trains each way every day, the *Champion* and the Chicago-Miami streamliners (*Dixie Flagler, South Wind,* and the *City of Miami*; see "A Streamliner Is Born," TRAINS, February) making the run in 6½ hours for an average of a little better than 56 miles an hour, start to stop. Arrivals and departures at Jacksonville are timed for convenient connections with feeding lines. Branch-line service is maintained between New Smyrna Beach and Lake Harbor (on Lake Okeechobee), Titusville and Benson Junction, and Miami and Florida City. The dotted line beginning at the tip of the peninsula shows the route of the overseas extension to Key West, now abandoned.

Aero-Graphic Corp., courtesy Realart Studios.

Where the Florida East Coast Railway gets its name.

Here is an FEC train en route along the shores of Hobe Sound. In the far distance is the Atlantic Ocean, which the railroad parallels from St. Augustine to South Miami, never more than a few miles from the shore. The 13-car train in the photo is typical of passenger trains on the line during the tourist season.

trade (as well as the tourist business) steadily increased. The prosperity of the mainland far overbalanced the disadvantage of operating the heavily capitalized and relatively unprofitable overseas extension and ferry service. Soon the business expanded to unprecedented proportions. Higher and higher went the traffic totals in the early twenties. One of the greatest booms of history was upon Florida, and the railroad more than carried its share.

Its connections at Jacksonville with the Atlantic Coast Line, the Seaboard Air Line, and the Southern Railway System enabled through Pullmans and refrigerator cars to be operated between the Florida east coast and the Northern cities. Tremendous movements of lumber, citrus fruit, naval stores, potatoes, and other Florida products, as well as manufactures in the opposite direction, began to tax the facilities of the railroad's single track. Added to this was the great seasonal movement of vacationers into and out of the resorts. Long trains of Pullmans, and private cars as well, moved on the FEC through Jacksonville from New York, Chicago, Philadelphia, Boston, and all Northern cities. Palm Beach was a Mecca to which an annual Winter pilgrimage was regarded as a social necessity. And this vast movement of vacationists came at the very time that the northward movement of freight was at its peak. It seemed as if the traffic volume would never cease growing. So great was it, in fact, that in 1925 it was necessary to declare an embargo on some freight. It was evident that the capacity of the line had been reached and surpassed.

And with that observation, the present difficulties of the railway began.

It was assumed that the traffic would continue to increase. Profits, as in all Florida business at the time, were pyramided, and no one could see any slackening in the development of the region. The result was that the railway began a tremendous expansion program. During 1923, 1924, and 1925, it spent almost 40 million dollars in extensions and improvements. For 1926 it contracted to spend about 21 million more. It is doubtful that any other road of like capitalization ever made such large expenditures for improvements and additions within four years.

The entire main line from Jacksonville to Miami was double-tracked. The capacity of the entire system was increased. The 29-mile Moultrie cutoff south of St. Augustine was constructed to eliminate the indirect route through East Palatka. Terminals and yards were enlarged. All 70-pound rail on the main line was replaced with 90-pound. Automatic block signals were installed. Bridges were replaced and double-tracked. New rolling stock and locomotives were purchased. (Locomotive purchases were so large that the road could not find use for some of its new passenger 4-8-2's, which eventually found their way into service on the Western Pacific.) A branch line was completed from Palatka southward. The road purchased new car ferries and acquired a large interest in the P&O steamship line, which serves Tampa, Key West, Miami and Havana.

But the fall that followed the rapid rise was inevitable. By the end of 1926 it was already under way. Traffic on the railroad fell off rapidly. Many farms were abandoned. Real estate developments were given up. Even yet, there are some uncompleted hotels in Miami. Almost as an anti-climax came the crash of 1929, which all but put an end to the last Florida traffic to hold up: the tourist trade. In 1930 the Florida East Coast Railway Company was put in the hands of receivers.

This calamity, accellerated by the crash of 1929, by the extension of the Seaboard Air Line into Miami a couple of years earlier, by a series of hurricanes which injured Florida's reputation as a Winter resort, and finally by the abandonment of the overseas extension, has greatly influenced the operation of the system in the decade since.

The decline of traffic from Key West had already caused serious questioning of the advisability of continuing to operate the overseas extension. Nature provided the answer to this problem in 1935, in the form of a teriffic hurricane. Over a distance of about 30 miles the destruction of buildings and bridges was practically complete. Tracks were destroyed where they crossed from island to island, and were shifted from the roadbed for long stretches over the keys. A rescue train was picked up bodily by the wind and waves and deposited many yards away. The receivers decided that reconstruction would not be justified, and the property was sold for reconstruction as a toll highway.

Thus was written the finish to a chapter in the history of the FEC. Passengers are now transferred from Miami to Havana by P&O ships, and freight cars are ferried by FEC boats from Port Everglades (Ft. Lauderdale) with little loss of time. Local traffic to and from the keys could never justify the extension of the railway. And hurricane dangers had been passed over lightly. Although the line was designed to withstand all ordinary storms, the weather bureau believes that the fatal one will probably be repeated within the century. In view of this, it is somewhat difficult to justify the expenditure of 57 million dollars on the reconstruction of the railroad as a highway.

An examination of some of the traffic characteristics of the road throws light on some unusual problems. First, although more than half of the trains operating over the system are passenger trains, they are responsible for little more than 35 per cent of the operating revenues. This is an unusually high percentage for an American railroad, but does not alter the fact that the greatest volume of traffic is the least profitable. Passenger service accounts for more than half of the expenses which can definitely be allocated to one service or the other. Yet the passenger trains more than pay their out-of-pocket costs or they would not be operated.

Probably the outstanding difficulty is the extreme seasonal fluctuation in business. Over the 10 years ending in 1938 the average loss in Summer exceeded the profits in Winter. Net operating income showed profit only from December to May; losses occurred the other six months. Twenty per cent of the passenger revenues for the year were earned in February alone; nearly half of the yearly freight revenues were brought in from January to April. The average net operating in-

Courtesy Florida East Coast.

Traffic of the boom period required double track.

In the early twenties it was found that the single-track main line was incapable of handling the traffic, so the line was double-tracked from Jacksonville to Miami, and automatic block signals were installed. Today this double-track line is needed only for the heavy flow of tourist traffic during Winter months.

come fluctuated from a profit of $450,000 in March to a loss of $230,000 in July. In the peak Winter month of September there was *six times* as much passenger business as in the low months of Summer. Even freight traffic was three times as great in one season as in the other. All yards, terminals and other facilities had to be designed to carry the peak loads, and they become far too large for the traffic most of the year.

In addition to the maintenance of peak-load facilities over the year, the seasonal unbalance also handicaps in maintaining efficient employment levels, in adjusting the movement of empty cars without too much reverse mileage or the accumulation of per diem charges (the ratio of empty to loaded cars is 80 per cent, one of the highest in America), in maintenance of way during the tropical Summers when traffic is lightest and maintenance requirements most critical.

A trip over the Florida East Coast would disclose a railroad which appears to be very prosperous and well maintained. Ninety-pound rail and double track all the way, automatic block signals, and a complete fleet of oil-burning locomotives help to explain the efficiency of handling the heavy Winter traffic. And now Diesel-powered streamliners complete the picture. The recent announcement of reorganization plans brings the hope that this efficient and essential railroad will be better able to serve the expanding population of Florida, which increased over 25 per cent in the last 10 years. With its excellent facilities and a reduced capital structure, the Florida East Coast Railway can look forward to better days.

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John W. Maxwell, 7416 Pennsylvania St., Denver, Colo.

The *Shavano* climbs the Rockies.

This narrow gauge track was once the main line of the Denver & Rio Grande RR. The train, *Shavano* or No. 315 westbound, is only a few minutes out from Salida, where it was loaded from standard gauge No. 15 from Denver. John Maxwell took this picture last June at 7:28 a.m. These famous tracks now bear the weight of freight trains only, while D&RGW passengers are toted over nearby highways by affiliated buses; 1940 marked the last year of passenger service on the old main line. The new main runs much farther north, and is standard gauge.

Mail-Key Railroaders

★ They sort the mail as speeding trains whisk the nation's letters on their way.

By Bryant Alden Long.

FRAMED tensely in the doorway of a speeding railroad car which neither passengers nor train crew may enter, a grizzled veteran of the rails peers ahead into the night, eyes fixed on a tiny light atop a track-side crane. His faded denims, the grim revolver on his belt, dangling chained keys—all combine to give him a grotesque glamor all his own.

He swings a big hook out into space at just the right second, and simultaneously shoves a pouch out the open door with his foot. As it swishes to the station platform the bedenimed "hunter" gathers up the quarry just captured on the wing with his great hooked weapon. It is a pouch of letters like the one he shoved off, but this one is quickly unlocked and emptied on a table. The old railroader's dexterous fingers fly like pistons between the table and several hundred pigeon holes in the mail case before him, sorting letters for perhaps 10,000 post offices whose routes he has memorized. He knows just what to do. He ought to; he has been doing it for ten hours today, and for each day of at least every other week for some 40 years. Catching mail from cranes, tying out letter packages, sorting these into pouches hung in an iron rack (not to mention thousands of newspapers into corresponding sacks), locking out and dispatching all his pouches at just the right station or junction with uncanny accuracy, guarding precious "registers"—all this, too, is second nature to him.

Nearly 22,000 of these mail-key railroaders, aged 18 to 62, are working daily for the United States railway mail service in trains and terminals. Railway postal clerks are proud to be employed by the world's greatest government in furnishing you and me and all other Americans—including millions of people who "have no use" for trains—with speedy and efficient coast-to-coast mail service. Contrary to a popular supposition, not one of these clerks is employed by *any* railroad or express company.

Railway postal clerks recently celebrated the 76th anniversary of the service, bringing up to date a three-quarters-of-a-century record of epochal achievements in speeding up the mails, colorful and sometimes tragic adventures experienced by clerks, and well-merited promotions of men in their ranks to places of high honor in government and commerce. In significant ceremonies at the railway post office car exhibit at the New York World's Fair, held on Railway Mail Service Day last September 1, leaders and friends of the service traced once more the thrilling historical record of our speedy mail trains and the men on duty inside them.

The first R. P. O. line in history was between Hannibal and St. Joseph, Missouri, and was opened in September of 1862 but discontinued the following year. According to one story of its origin, a postmaster had found a sizable family of mice inside a pouch of delayed letters, and determined to do something about it. At any rate, W. A. Davis of the St. Joseph post office managed to get a baggage car rigged up with a sorting case, so that the voluminous mails destined for connection with westbound stage coaches at that point could be sorted in time to be transferred to the very earliest stage leaving. Civil War complications probably caused the suspension of this route.

The first permanent railway post office operated between Chicago and Clinton, Iowa, on the Chicago & North Western Railway. According to some authorities, it was founded largely by George B. Armstrong of the Chicago post office, who later became the first superintendent of railway mails. The Chicago & Clinton R. P. O. began running August 28, 1864; New York and Washington were next connected, on October 15. The first R. P. O. car had sorting boxes around three sides of one end for letter mails, just as many

A. C. Kalmbach.

There's nary a slip 'twixt the pouch and the hitch.

Before the advent of the mail crane it was necessary to bring the train to a complete stop for pickup and delivery, and such stops were made only in the larger cities, local trains serving the smaller communities and relaying the pouches. In this photo a Chicago & North Western train is shown making the catch.

cars do today, while at the other end were larger sorting boxes for newspapers (now superseded by an iron "paper rack" in which sacks are hung). A crude stove stood in the middle; there were only two small windows on each side, and almost no conveniences or special devices for handling mails.

Today, nearly a thousand R. P. O. lines operate. They range from the 11½-mile Thurmond & Price Hill in West Virginia to the 1171-mile Williston & Seattle (North Dakota to Washington state). A total of 3,882 R. P. O. cars operate over 200,000 miles of such routes. These lines, with rare exceptions, are named simply from the two cities which they connect. They are all on steam railroads, except for five interurban runs, at least two of which are scheduled for abandonment this year; however, scores of interurbans and suburban electrics carry closed pouches under railway mail service regulations. The picturesque city street car R. P. O.'s, connecting main offices with stations, disappeared in the 1920's.

While the railway postal clerk's life is indeed one of interest and occasional adventure, it is by no means the bed of roses pictured in the civil-service school ads. True, R. P. O. clerks "travel for Uncle Sam" free; but they seldom "see the country." Working strenuously and often desperately trying to meet pouch exchange deadlines, they can rarely so much as glance out of their barred windows, and when they end their run at a strange city, they are usually too tired to do anything but "hit the hay." Neither do they wear natty suits or uniforms, as ad readers or visitors to the spick-and-span World's Fair exhibit would gather. Clerks wear their old clothes, because the outsides of mail bags get grimier than a chimney sweep's broom in almost no time.

The hazards of early railroading in the days of "wooden cars and iron men" produced many a postal clerk hero, some of whom never lived to tell about the terrible wrecks and daring mail robberies which proved to be their doom. Fortunately, in these days of multitudinous safety devices and grimly efficient postal inspectors, all such catastrophes are rare. But railway postal clerks still go to great personal risk to protect tthe mails or to help save lives and property when such a rare tragedy does take place. Just last year

Courtesy Norfolk & Western.

Interior of railway post office.

This is Norfolk & Western R. P. O. car No. 96. By the use of such mobile sorting rooms mail has been greatly hastened in the past 76 years.

two clerks on an Illinois run had a gun battle with bandits, resulting in the bandits' capture and the saving of valuable registers from theft.

On the lighter side, F. C. Gardiner tells in *The Railway Post Office* (published by the Railway Mail Association) of a soft-spoken sub from Dixie, "laying over" in Washington, who was persuaded by a couple of clerks on the New York-Washington run to go to New York with them on a little pleasure trip. When he objected that he didn't have the fare, he was told he could deadhead along with them by simply holding up his commission (a pass over Southern railways) and saying "Jersey!" (*i.e.*, running out of Jersey City) to the conductor.

The three boarded the train, and when "Old Eagle Eye" came by, the two New Yorkers casually flipped their commissions and growled "Jarsey!" The conductor quickly passed them.

Then the young Southerner attempted the same, but all he could manage was a long-drawled "Jeersee!"

"Let me see that commish, young feller!" snapped the "brains."

"Never mind," stammered the very red-faced substitute. "How much is a round trip to Baltimore?"

America's mail-train clerks are quite as human and fun-loving as the rest of us. But they are also, as a class, remarkably dexterous, talented, and efficient in the important business of getting that letter of yours out to your California girl friend in double-quick time along with 16 billion other pieces of mail every single year.

And although their "switch keys" are mail keys, these men are railroaders all. They have a share in all the tasks and traditions, the risk and romance, that float upon the smoky breath of the high iron. Just as the rise of journalism added an enlightening Fourth Estate to the three levels of feudal society, so has a powerful Fifth Brotherhood arisen to supplement the work of our railroaders' Big Four lodges by providing special safeguards for the lives and welfare of railway postal clerks.

Called the Railway Mail Association, this brotherhood has perhaps the finest record of organizational loyalty of any fraternal-labor society in the world. Its total membership figure of over 22,700, including retired employees, *exceeds* by nearly a thousand men the 21,800 regular and substitute clerks now actively employed. There are more R. M. A. members than ever before, and they are proud of their achievements in bettering working conditions and salaries among their number and in supplying accident insurance at mutual benefit rates. Like your Brotherhood of Railroad Trainmen man, the railway postal clerk has his gold "stinger," a little replica of the old-style mail lock. R. M. A. members publish an excellent magazine for all clerks, and they hold branch and auxiliary meetings in all large railroad cities, interspersed with colorful social functions and big national conventions.

Another interesting point of similarity between the service organization and outside railroading consists of the Brown system of

merits and demerits which was adapted from standard railroad practice to the disciplinary needs of railway mail service many years ago. Clerks speak of demerits as "D's" rather than as "brownies"; however, they are just as wary of them as any other railroader from hogger to student brakeman. If the old veteran of our opening paragraph had missed that pouch with his catcher hook, it would have cost him five D's. Or if he'd lost one of those dangling keys, it would have been 100. And it only takes 150 demerits to rate a possible discharge.

On the other hand, by outstanding performance and study, the clerk accumulates merits which will help his record considerably. Few people realize that mail clerks must be studying almost constantly on mail routes and connections, complex space rules, and the postal laws and regulations, and that they must take periodic examinations in which passing is 97 per cent. Clerks are appointed to the service as "substitutes" with rather irregular and sometimes scanty employment, but they must memorize routes for 2200 different post offices within their first year, in addition to other studies.

Clerks have an interesting way of learning postal routes. Set up in 20,000 clerks' homes are as many miniature mail cases, like egg crates set on edge. In these cases the clerk practices throwing cards marked with the names of all offices in the state he is studying, routeing them to the R. P. O. lines and distributing offices whose names appear on "headers" (labels) over each cell. Ingenious memorizing methods, printed practice cards, and other equipment are sold to clerks by specializing manufacturers to help lighten the task. Fortunately many clerks have a keen natural interest in the routeing of addressed material and in geographical and transportation matters, and derive considerable enjoyment from their studies and duties. Others find them more of a grind, but all are glad to be working for an agency whose lowest-paid "regulars" receive $1850 annually with automatic promotions for several years.

The interesting process by which mails are sorted on board the trains is entirely different from nearly all other commercial operations. Perhaps it may best be outlined if we hearken back, for a moment, to the days before mails were handled in R. P. O.'s. From about 1840 to 1862, all sorting of mails was done in post offices and the letters hauled in closed-pouch trains. Letters in the originating offices would be sorted roughly according to states and large cities, then (in nearly all cases), dispatched to their destination by way of one or more intermediate offices, at each of which the letters were delayed for further sorting. As the postal system grew, huge distributing offices had to be set up in Chicago, New York, and other large cities to do this sorting. Soon the volume of mails was far too great for even these offices to handle. It often took twice as much time for mail to reach its destination as was required by passengers on the same train, and letters were lying piled up in the Chicago distributing center for a week and more without being touched.

To illustrate how efficiently the railway mail service has speeded up this process, let us compare the progress of a typical letter mailed in Maine in 1850 and destined to a town in Florida, with that of a similar letter today. In the first scene, laid in a small Maine village back in the fifties, we see the local postmaster placing our letter in a "Mixed States" letter package containing mails for all points beyond Boston, for he does not handle enough mails for distant points to sort them by states. Our letter probably goes to the Boston office for its first sorting, being delayed at least a day before it finally emerges as part of a "South States" letter package bound for New York. At that city it awaits its turn for two or three days before it evenually winds up in a package of Florida letters as the result of a second distribution. Finally, by the time it gets to Washington or Atlanta, enough other letters for the same Florida town may be on hand to permit a "direct" package being made up, as a third distribution. If we are lucky, our letter is delivered in a week and a half.

Today, four speedy R. P. O. lines carry the letter continuously southward, while all necessary sorting is done in transit. A clerk on the Bangor & Boston R. P. O., running through our Maine town, receives the letter and probably puts it in a "South States" package. The package is addressed by means of an attached slip to the next R. P. O. connection, the Boston and New York. The clerk on that line will probably make up a "Florida" package, and the next clerk, on the New York & Wash-

B. A. Long, 40 Spencer St., Hyattsville, Md.

Rare trolley post office.

The only surviving trolley R. P. O. in the East is car No. 44 of the Washington & Bluemont (Old Dominion). Taken at Arlington, Virginia.

ington line, a "Washington & Jacksonville—Florida" package. If the Florida village is directly on the Washington & Jacksonville R. P. O., the clerk on this latter line will put it off there in a direct package; if not, he will put it in a package addressed to a connecting line (unless he can make up a sizable "direct" anyhow). The whole process will take about two days.

All mails received in any R. P. O. car are first separated by classes of mail (letters, newspapers, parcels, etc.), and then according to states. In the cars there is at least one complete letter case for each nearby state; other mails are made up into state packages in the "mixed states" case and dispatched to distant R. P. O. lines for handling. Letters for each local state are sorted into three types of separations (letter packages) as will be briefly explained later. Newspapers are distributed into sacks of the same three classifications, but including all the local states in one rack.

All letters are dispatched over the shortest mail route, geographically, unless poor connections make a longer route speedier; and are dispatched mostly to R. P. O. lines or direct to office of destination. In routeing or distributing his letters the railway postal clerk uses two fundamental principles which are quite distinctive to postal operations, and which can never be applied to the routeing of "intangible" messages like telephone calls or telegrams. The first of these principles, *direct packaging,* has already been touched upon; the second is that of *working the local.*

For example, a clerk on the southbound New York & Washington R. P. O. (any Pennsy mail car running from New York to Washington) comes across, say, a letter for Richmond, Virginia. According to his official scheme (route chart) it would properly be routed to the Washington & Jacksonville R. P. O. Yet he sticks it, not in his case's "Washington & Jacksonville" box, but in one marked "Richmond," and when this boxful of letters is tied out it will be a direct package for Richmond with the top letter serving as its address label. The clerk likewise makes up packages for all other large cities and towns in Virginia and nearby states, and even whole "direct pouches" when mail volume justifies. These direct packages are the first of the three classes of separations on each R. P. O. mail case.

The other distinctive principle of mail routeing, *working the local,* is simply the process by which an R. P. O. line handles all mail moving to, from, and between all offices on its own railway route, regardless of how close these towns are to each other or to large offices. Most of this mail for local dispatch is received in packages of letters addressed to the R. P. O. line in question, from many different post offices and other R. P. O.'s. They contain letters for all small towns along the line which do not get enough mail to enable direct packages to be made up by the originating office or line. Similarly, our own R. P. O. will make up packages of small-town mail addressed to other R. P. O.'s by means of a slip-label. These are all called *line packages,* and constitute the second class of separations found on every R. P. O. mail case, which will contain a box for every R. P. O. line serving the state involved.

The third class of sorting boxes or separations on mail cases consists of those for *dis packages,* and are headed "Baltimore Dis," "Philadelphia Dis," etc. These represent packages of mail which are to be distributed from a large junction post office such as Baltimore to smaller post offices nearby which are not served by R. P. O.'s but only by highway star routes.

Magazines, circulars, and parcel post are usually handled in terminal railway post offices in the large cities, and not in R. P. O. cars. In each terminal there are circular-mail cases, parcel racks, and paper (magazine) racks for all states assigned to it. Direct

packages (or direct sacks) for the offices in each state are classified as "primary" (large city) and "secondary" (small city and town) directs; while the line and dis packages (or sacks) are spoken of as "residue." By first "straining" their mail through the primary and secondary separations in order, the terminals accomplish an amazing amount of distribution in a short time. A terminal railway postal clerk sorts up to 10,000 circulars daily, or other mail in proportion.

Like other types of railroaders, railway postal clerks have their own distinctive lingo. A clerk *puts up* (takes) his examinations, *works* or *sticks* the mail and—if there is too much of it—*goes stuck* (gets piled up with unworked mail). Like a telegrapher, he *closes out* a rack or case in a terminal, just as the former closes out a wire circuit; and this term is apparently the only distinctive one which is used in both of our two leading branches of communications work. Some other terms are:

Nixie—Undeliverable piece of mail, not addressed to a postoffice.

Angel—Extra sack label received by clerks working on count-of-mail basis.

Reds—Pieces of registered mail (from color of special jacket used).

Sleeper—Unobserved letter left in car and discovered on inspection.

Beno—Official prohibitory order ("There will be no . . .").

Skin—Sack with almost no mail therein, eagerly welcomed by overworked clerks. Sacks "crammed to the gills" are spoken of by various other terms, none of them exactly complimentary.

Railway postal clerks have a record of which they may well be proud. Not only are they performing a complex and vital service with precision and capability; they have also produced from among their own ranks railroad presidents, legislators, assistant postmaster generals, other high government officials, and distinguished professional men. We may well trust these clerks with our most precious messages, our most priceless valuables; for surely it was of them that the ancient Grecian prophesied that "Neither snow nor rain, nor heat, nor gloom of night shall stay these couriers from the swift completion of their appointed rounds."

Mail Train! I see your markers gleam,
Swift though they fade from sight;
And still as in a transient dream
My fancy takes its flight
To trace you o'er the rails of time;
And at each fleeting station,
Salute each clerk on all the line—
An asset to his nation!

One Brass Hat to Another

During early merger negotiations between Presidents I. B. Tigrett of the Gulf, Mobile & Northern and E. E. Norris of the Southern, which controlled the Mobile & Ohio previous to its merger into the Gulf, Mobile & Ohio, there arose a bantering correspondence over the question of jurisdiction. Mr. Norris took issue with Mr. Tigrett over methods which the latter had taken with respect to administration of the Mobile & Ohio shortly after the I. C. C. had authorized the consolidation, but some time before the merger was effective. He told Mr. Tigrett to take his time and that "all that had happened up to now was that the GM&N and the M&O had agreed to marry and had got the license, but that the ceremony had not yet been performed."

In reply Mr. Tigrett wrote, "I cannot find anything wrong with your metaphor, except to add that the plan to marry is subject to the bride's pending divorce proceedings. While it is generally conceded that during these proceedings the couple-to-be must live separately, it certainly would not seem improper for them to discuss their future and plan the course of their lives. This is, in fact, done in the most successful marriages.

"The couple might sit up late at night talking about their future home and its furnishings, and they might even discuss the welfare of their respective families. All of this could be done, could it not, with propriety and without any talk among neighbors?"

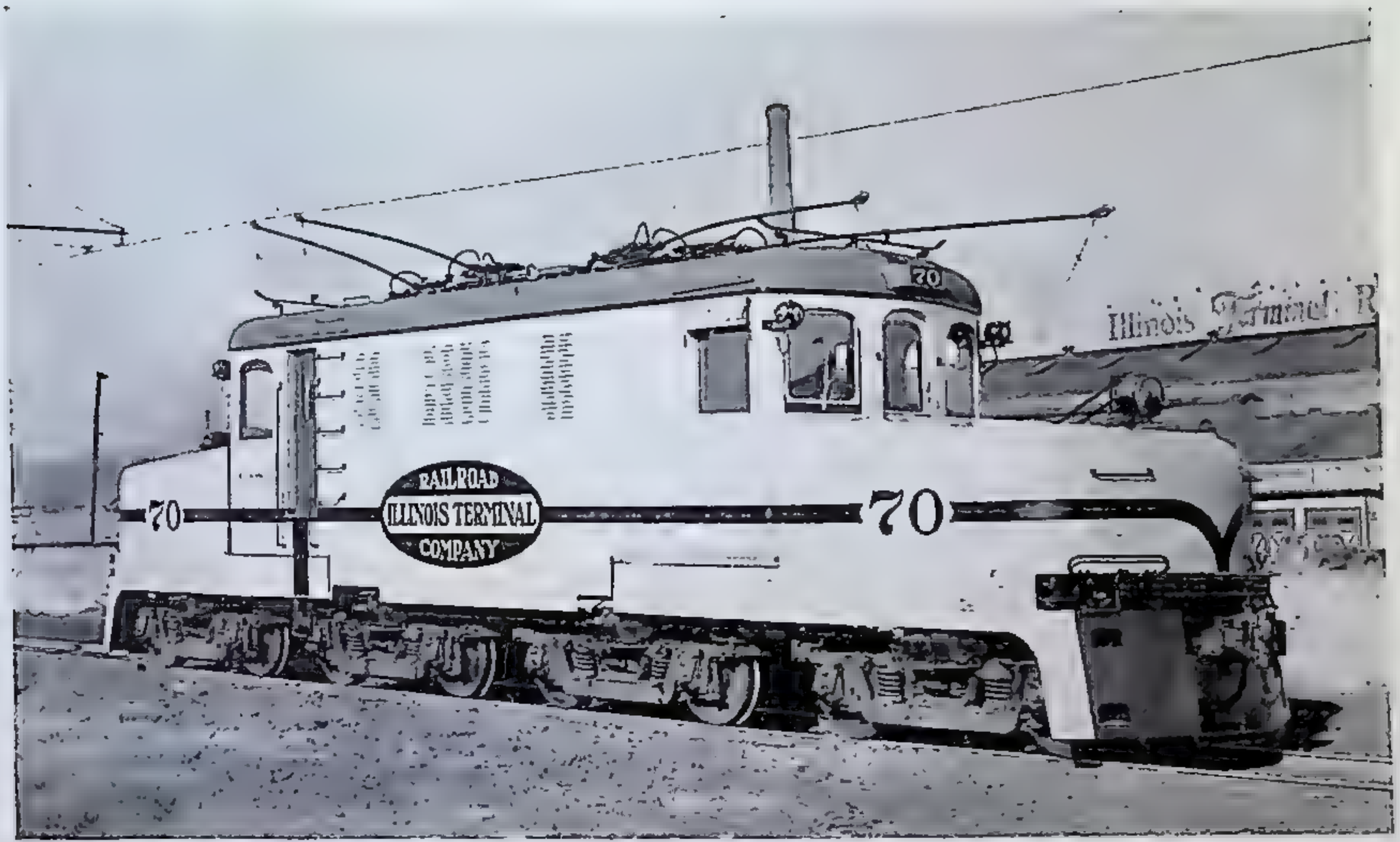
Postage Rates, Wholesale

For carrying first class mail, railroads receive an average of about one-fifth of one cent per letter, or approximately one-fifteenth of the postal revenues collected by the government on this class of mail.

Courtesy L&N Employes' Magazine.

Mobile service station for Diesel switchers.

When the Louisville & Nashville Railroad purchased two Diesel-electric switchers for yard service at East Louisville late in 1939, it was confronted with the problem of servicing them efficiently. Unlike steam locomotives, the Diesels work 24 hours a day and do not make daily trips to the roundhouse, where they ordinarily would receive such servicing. The problem was solved with the addition of two service cars, No. 41400 with a capacity of 6600 gallons of fuel oil, and No. 41499 with a capacity of 40 tons of sand. No. 41400 is equipped with special connections, meters, etc., and is visited by each Diesel about once every third day for a seven-minute, 400-gallon drink. Sand is taken on once a month by each switcher, which uses about 100 pounds of sand per day.



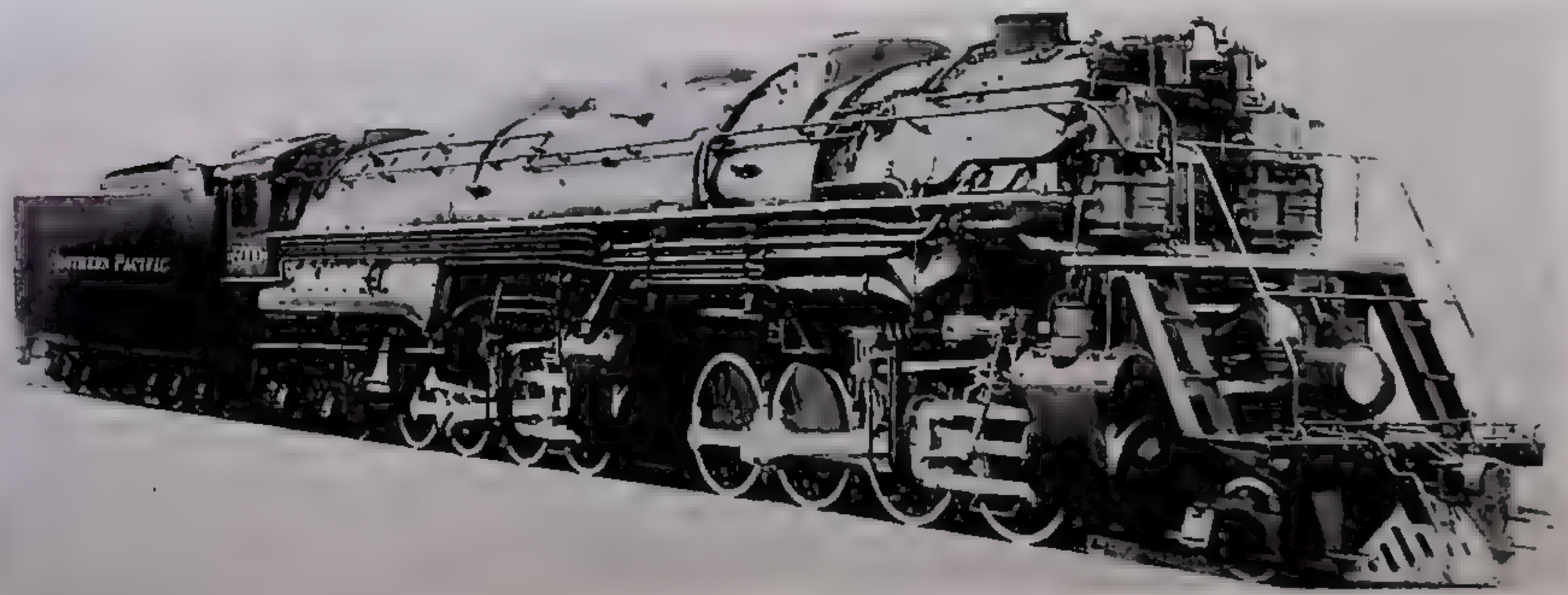
Courtesy Illinois Terminal RR.

Modern power on the Illinois Terminal.

One of the larger small freight railroads is the Illinois Terminal Railroad Co. operating from St. Louis northward to Peoria, via Springfield, and eastward to Danville, Illinois. This railroad handles a freight traffic that is tremendous and it has built this up through good dealings with its customers. The Illinois Terminal is particularly fortunate in that most of the lines are now routed around the cities instead of through them, thus avoiding much of the traffic which, in the past, killed many of the interurban railroad lines. No. 70 is a heavy power job which might be considered as an entirely new locomotive even though some parts from an older engine were used. ITC is now the longest electric railroad in the United States which handles passenger service over its entire length—barring, of course, the heavy steam road electrifications such as the Pennsy and Milwaukee Road. The route mileage from St. Louis to Peoria is 170 miles and the distance from St. Louis via Springfield to Danville is 193 miles. If you were to consider this as the main line it would actually beat the record of the Sacramento Northern (TRAINS, March).

Northern Pacific heavy power.

This is a three-quarters view of the famous Yellowstone type locomotive used to haul heavy freight on the NP main lines. For specifications see page 2.



Courtesy Northern Pacific.

Railfans' Utopia

★ If New England men have their way, fans will have a private road of their very own.

ALARMED at the threat of abandonment of the Bridgton & Harrison Railway, a 16-mile-long two-foot gauge relic of the past serving Bridgton in the center of Maine's Summer camp region, a group of New Englanders has organized the Bridgton Railroad & Development Company in an effort to save at least part of the road's equipment from the ignonimy of the junk yard. Shares of stock in the company, a non-profit organization, are to be offered to railfans the country over.

The abandonment of the famous little narrow gauge road seems inevitable, and the new company will have to be capitalized quickly if it is to save some of the picturesque equipment of the 58-year-old line. Application for abandonment was applied for in June, 1940, by some unfavoring stockholders; a public hearing was held in October. A recommendation report for abandonment was submitted to Division 4 of the I. C. C. in January of this year, and was accepted by the commission. Edgar T. Mead, special representative of the road and one of the active backers of the new development company, claims the recommendation report was "full of erroneous and misleading statements," with the result that "the little railroad was not given many breaks."

Although permission was granted to abandon the line, no action was taken by the railroad's stockholders at the annual meeting in February, when the incumbent officers and directors were reelected. However, in view of past proceedings and the threats of abandonment which have been almost continual for the past 10 years, there is little reason to be optimistic about future operations, Mead believes.

The Bridgton Railroad & Development Company's plan, if the road is actually abandoned, is to buy enough of the rolling stock and right of way equipment to set up a brand-new railroad on a 100-acre tract of land in the vicinity of Bridgton, to be operated solely for the pleasure of the stockholders without thought of profit. It would be practically impossible to purchase the entire railroad, although it is agreed that this would be the most favorable program, and that a reversion to vigorous private ownership would be a very good thing for the tiny common carrier, last of a long list of two-foot gauge roads which once crisscrossed Maine.

Let Special Representative Mead tell of the development company's plans:

"We want to do two things: *a*, preserve the narrow gauge equipment and, *b*, run our own railroad. The plan we have in mind, we are convinced, will be your lifelong ambition as a railfan fulfilled. You have, no doubt, dreamed of a little narrow gauge single-track line upon which you might be section hand, conductor, or fireman—each whenever you wished. You have thought of the track twisting through pine forests where the sun streams down all the Summer day or of the little depot at the remote terminus. You have planned to work some day on a line which might have wooden covered bridges spanning clear trout streams, rises and falls in the track which reveal outmoded or uneconomical construction, or real old highball signals as the standard signal device.

"All these may yet be accomplished. Your armchair ambition, though you yourself may be an insurance broker, a business man, or a teacher, has been to become a stockholder in a real and interesting railroad. This, too, may be accomplished if we have our way.

"Although the company is to be informal, an organization composed of a board of directors, chief officers, and stock-holding members is advisable. The board, which should be composed of members holding the most stock, will choose a chairman who, it is assumed, will also be president. A treasurer and secretary will also be chosen, and appointments will include a general superintendent and a mechanical engineer. The com-

Edgar O. Spaulding.

A big day on the B&H: August 25, 1940.

This is what No. 7 may expect if she is purchased by the Bridgton Railroad & Development Company as planned. Here No. 8 pants to a stop at the Bridgton station with an overload of Railroad Enthusiasts *et al* on the Enthusiasts' annual trip, August 25, 1940. Notice the sway-backed, leaning, old-time coaches.

pany will also need a legal consultant, and correspondence from interested volunteers is solicited.

"As this is to be a full-fledged railroad, there will be matters of finance to attend to. It may be possible to use a good-sized tract of land in Bridgton without compensation, so the original capital expenditure, haulage costs, and incidentals such as legal work and stationery costs remain as the immediate primary consideration. It has been suggested that the capital expenditure be borrowed in part from a Bridgton bank and in part from individuals, and that the loans then be paid off through sale of stock.

"We need your aid, and we ask that all those interested in buying shares at $5 each write us immediately, stating the number of shares they will want to purchase. It is not enough that only a few buy stock. This plan is for *all* railfans, and anyone interested in preserving part of America's last two-foot gauge railroad should buy at least one share. This is a non-profit organization and will carry no financial compensation for any job-holding member for any reason."

The list of equipment to be purchased, as furnished by Mr. Mead, includes:

Engine No. 7, Baldwin 1913 2-4-4T, complete with tools, spare parts, rerailing frogs, and jacks.

Some old-fashioned passenger coaches, complete with window blinds and other parts removed since the original purchase.

A baggage way car, complete with car jack and extra journal brasses.

Some representative box cars.

Several flat cars.

Double-truck snow plow.

Four-wheel push car complete with track working tools and screw rail jack.

Turntable (17-foot), complete with rail.

105,600 pounds of 35-pound rail.

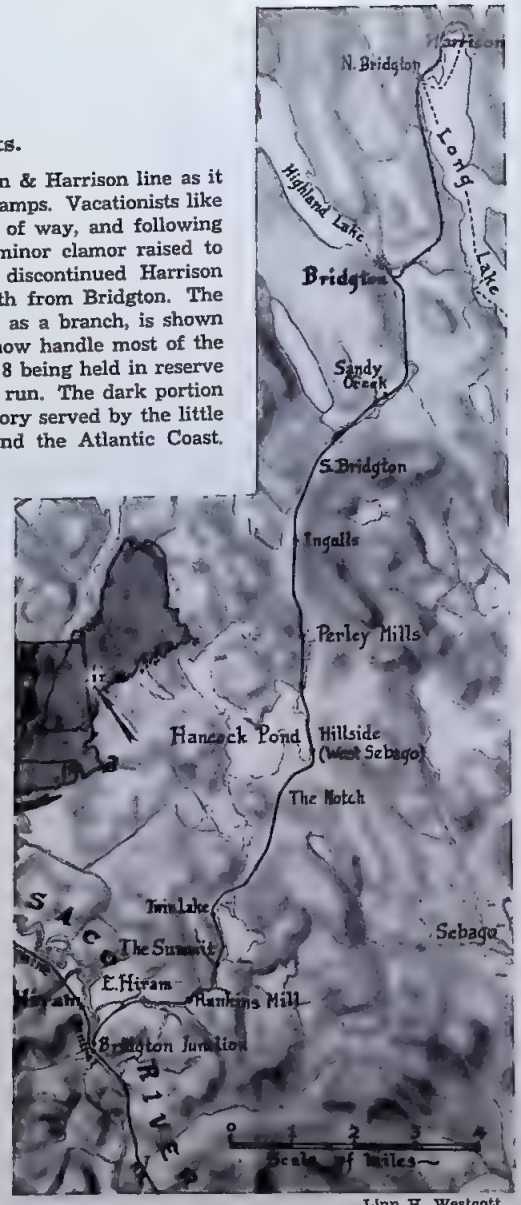
Five switches with stands.

Necessary rail fastenings.

The Bridgton & Harrison Railway, which since 1930 has not served the latter community, was originally known as the Bridgton & Saco River Railroad. It was born after a great deal of hard work, campaigning and propaganda, and after several other

The B&H meanders through pine forests.

About two-thirds of the total trackage of the Bridgton & Harrison line as it is today is through pine forests dotted with Summer camps. Vacationists like to ride the trains because of the beauty of the right of way, and following the chartered excursions last Summer there was a minor clamor raised to keep the line intact as a vacation attraction. The discontinued Harrison branch is indicated by the crossed line running north from Bridgton. The Maine Central, which at one time operated the B&H as a branch, is shown in the lower left corner. Gasoline-powered coaches now handle most of the passenger business on the narrow gauge line, old No. 8 being held in reserve for more auspicious occasions than an ordinary daily run. The dark portion in the small inset map shows the location of the territory served by the little common carrier in relation to the state of Maine and the Atlantic Coast.



Linn H. Westcott.

propositions for rail connections between Bridgton and the outside world had been turned down. When the Atlantic & St. Lawrence Railroad (now the Grand Trunk) was put through to South Paris, and when the Portland & Ogdensburg (now the mountain division of the Maine Central) was built to Fryeburg, the town made an earnest effort to get one of these roads to serve Bridgton, but without success.

In 1880 the campaign which was finally to prove successful was started, and the town was a hot bed of arguments pro and con from then until the controversies were settled in 1882. In March of that year it was voted, 533 to 175, to raise $36,000 by loan to aid in the construction of a railroad from Bridgton to Hiram. The two-foot gauge was settled on because it was felt that this narrow gauge would be less costly than wider gauge and would serve just as well as a feeder line to the Portland & Ogdensburg.

The first train over the new railroad was greeted in Bridgton on January 21, 1883. Regular daily service — two trains each way between Bridgton and Bridgton Junction, where connections were made with the Portland & Ogdenburg—was started January 31, and in June of the same year a third daily round trip was added. In 1912, when the road was booming, there were four trains each way every day.

Once Owned by Maine Central.

The cost of construction amounted to $169-395, and the cost of equipment $26,473, a total cost for the whole railroad of $195,868. There were two passenger cars in the original equipment, the *Pondicherry* and the *Mount Pleasant*. The *Pondicherry* is still in service. The cars, 46 feet 3 inches long, platform width 7 feet 3 inches, were made by the Laconia (New Hampshire) Car Company at a cost of $2500 each. Other equipment included 15 freight cars, 26 feet long; a combination car 30 feet long; a baggage-mail-express car, 46 feet 3 inches long; three hand cars; three push cars; two locomotives.

The Harrison extension, 5.1 miles, was

completed in August, 1898, at a cost of $35,000.

In 1913 the Bridgton & Saco River was purchased by the Maine Central, which operated the B&SR as a branch line. In 1926, however, the 15.8-mile line was sold to a Bridgton corporation, biggest stockholder of which was the town of Bridgton itself.

Coincident with the new management came a change in name to Bridgton & Harrison Railway. The first day it operated under the new name a train left the tracks near North Bridgton. No one was hurt.

After four years of operation as the B&H the Harrison branch was discontinued, in 1930, but the name remained the same.

During the business decline of the thirties conditions became so poor on the railroad that gasoline buses, carrying trailers, were substituted for the regular train, in the interests of economy. Then, in 1936, a more railroadish motor coach was procured from a defunct narrow gauge line between Farmington and Rangely. With the gasoline jalopies the road did a fair business, holding No. 8, the tank locomotive, in readiness for special occasions.

No. 7, the locomotive which the Bridgton Railroad & Development Company wants to purchase, was put into shape after a donation was made by visiting railfans in 1940.

RAILFANS proved a godsend to the road last Summer, when the first of a series of excursions was a pronounced success. The little railroad's fame grew as hundreds of newspapers throughout the country carried press association dispatches about the fan trips, and it was hoped by loyal supporters that the I. C. C. would refuse permission to abandon the line because of its widespread publicity. Permission having been granted, it may be that it was last year's publicity—and, incidentally, excursion revenues—which stayed the directors' hands in the matter of abandonment when they convened in February. However, there seems to be little doubt that the road will finally be abandoned.

The best receipts for a day of excursioning came when six Massachusetts fans chipped in $50 to repair No. 7's fire box, in addition to the $60 fee for the excursion itself, which proved to be anything that a railfan could desire. They shunted and shuttled trains, tugged and pulled, switched, about-faced the engine on a turntable, hauled coal, picked blueberries, got covered with soot, and stalled the whole system to go swimming. They didn't run on schedule.

They had a number of non-paying passengers aboard. Anybody was welcome to ride. They cleaned out Summer camps and loaded vacationists on the train, and if the passengers didn't want to join in the fun they could walk home.

When No. 8 jerked out of the roundhouse at the beginning of the day, two white flags were fluttering from the marker brackets, but when the wind caught them and smoothed them they turned out to be white running pants. The engine crew removed these and climbed into the cab.

Almost all of the passengers who were waiting at the Bridgton station had cameras. They climbed to the roof of a box car, stopped along the line to pick up folding chairs for a flat car, and moved in and out of an ancient little coach as No. 8 puffed a start for Bridgton Junction.

The train was stopped for any and all reasons. Anyone could signal for a stop merely by yelling, "Hey, wait a minute!" Halts were made to inspect a float or a swimming beach, to pick blueberries that grew thick along the banks, or to pick up vacationists—strangers then, friends a few moments later—who, attracted by the seldom-quiet whistle, gathered along the right of way and clambered aboard to finish the trip.

When the train arrived at Bridgton Junction it was promptly deserted. Crew and passengers went on reconnoitering and foraging expeditions. Then the locomotive was uncoupled, run onto the turntable and headed back east. Three loaded coal cars stood on a siding nearby. The crew added them to the train before heading back to Bridgton.

A hill stalled the locomotive on the return trip, but after a short recess to build up steam—the handiest person to the shovel acted as fireman—another attempt was made, and No. 8 chuffed over it.

They shuttled back and forth along the line all day, and the Bridgton & Harrison Railway grossed $110 on an ordinarily idle day—$60 for the excursion, $50 donation for repairs to No. 7.

Besides chartering trains to excursionists, the road last year ran many "sunset excursions," charging 35 cents for the 32-mile round trip.

Courtesy Southern Pacific.

No "blind spots" from a cab like this.

Oil-burning locomotives do not require close proximity between locomotive and fuel tank, so the Southern Pacific took advantage of this fact in constructing its oil-fired articulated locomotives. Enginemen have as good a view of the right of way as an interurban motorman. Another advantage of the cab-forward type is that the engine crew is spared obnoxious fumes as the train operates through long tunnels and snow sheds. No. 4178 is one of 28 Class AC-8 (4-8-8-2) engines. It has 63½" driving wheels, four 24" x 32" cylinders and a boiler pressure of 250 pounds to the square inch. Tractive force is rated at 124,300 pounds; horse power at 40 miles per hour, 6000. Engine and tender combined measure 125'-11". The tender carries 21,900 gallons of water and 6400 gallons of fuel oil.

SP Articulateds

★ Siamese twins of the rails, sired by Mallet type, are themselves simple articulateds.

Southern Pacific is far from unique in its use of articulated locomotives, for these mechanical mastodons — really two locomotives under one boiler—are used extensively throughout the country. But Southern Pacific stands alone in the use of cab-in-front articulateds, which not only afford the engineer a better view but also give protection from smoke and gas fumes while negotiating tunnels and snow sheds. Originally they were operated exclusively between Roseville and Sparks over the Sierras, where the number of snow sheds and tunnels first pointed out the advantages to be gained through the use of such a design, but in recent years they have been put into service over the Siskiyou and Cascade ranges in northern California and over the Tehachapi Mountains on the San Joaquin division. Sixteen out of 28 purchased from Baldwin in 1939 have been assigned to operate out of Los Angeles over the Cuesta grade between San Luis Obispo and Santa Margarita.

Cab-in-front design is readily adaptable only to oil-burning engines, which do not require that the supply of fuel be adjacent to the fire box, as is the case with the coal-burning type. Southern Pacific has many coal burners with the cab in the conventional location. Actually, a cab-in-front engine runs backwards, with the tender between its front end and the train. The photographs of No. 4185, at the bottom of page 42, show this clearly. While the cab end is referred to as the front end and the smokebox end is referred to as the rear end, however, the right and left sides are designated when looking from front to back, so that the locomotive's actual left side is called the right side, and vice versa. This apparent inconsistency is accounted for by the fact that many patterns are interchangeable with other types of power operating with the smoke box forward, and it makes things easier for the shop crew when a locomotive goes in for repairs.

Articulated locomotives are an outgrowth of the Mallet type brought over from France early in the century, with a system of articulating two engines under a single boiler. True Mallets, however, are *compound* articulated engines, while the articulateds in use on the SP today—and those in use on most roads, for that matter—are *single expansion* engines. In the compound engine, the same steam is used first in one set of cylinders and then the other, making the steam do double duty by capturing as much as possible of its expansive force. The single expansion engine uses fresh steam in both sets of cylinders. Theoretically, the Mallet is the more efficient of the two, but practically, the single expansion type has been found the better.

Mallets differ in external appearance from simple articulateds in that the former type usually has one pair of ordinary-size cylinders and one pair of enormous cylinders. Cylinders of the simple type are all the same size. The huge cylinders of the Mallet are those which receive the steam second-hand and use its expansive force with little pressure, giving them the name *low-pressure* cylinders.

Southern Pacific once had a lot of Mallets, the first being delivered in 1909. In 1927 one of these was converted to single expansion, and as a result the first AC-4 class 4-8-8-2's were bought in 1928. Since that time all the Mallets have been either converted to single expansion or dismantled.

The railroad's most recent acquisition of this type of power was in 1939, when 28 cab-in-front engines, Class AC-8, were ordered from Baldwin and 12 Class AC-9 2-8-8-4's, coal burners, were ordered from Lima. The AC-9's, of course, have the conventional cab location (see photo, page 43). Both the 8's and the 9's have, among other improvements, automatic tire and wheel coolers which operate when the brakes are applied, spraying wheels and tires with water to prevent overheating due to the braking action.

D. L. Joslyn, 2164 Castro Way, Sacramento, Calif.

A study in contrasts: 4-2-4 vs. 4-8-8-2.

The one-spot is better known as the *C. P. Huntington*. It was built by Danforth Cooke & Company in 1863. Its two drivers measure 54"; cylinders are 11" x 15'. This heavyweight of the rails (43,500 pounds) exerts a tractive force of 3571 pounds. No. 4162, of Class AC-7, tips the scales at 1,028,700 pounds, with tender, and measures 125 feet as compared with No. 1's 29'-6". Its four cylinders are 24" x 32"; drivers, 63"; tractive effort, 124,300 pounds. Baldwin-built, 1937. Shown below are the left and right sides of No. 4185, Class AC-8, specifications for which are given on page 40. Class AC-8 engines are heavier than those of Class AC-7, weighing 1,051,200 pounds, and are 11" longer. The AC-8's tender alone measures 46'-5½".

Courtesy Southern Pacific.

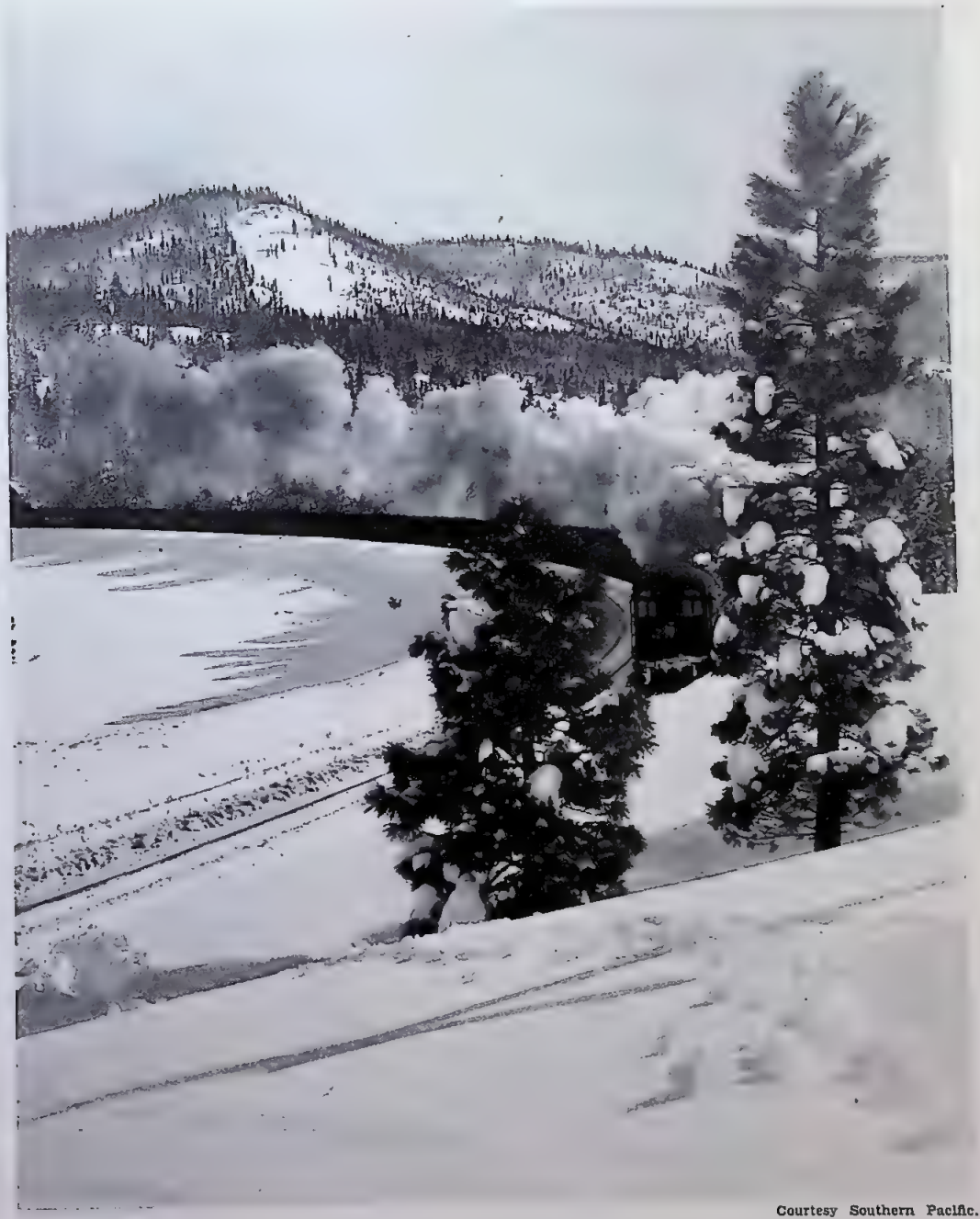
Courtesy Southern Pacific.

No. 4028, a 2-8-8-2, is equipped with a booster.

Besides the twin-eight types, Southern Pacific also has 12 4-6-6-2's, built by Baldwin in 1911, as was No. 4028, above, of Class AC-2, with four 22″ x 30″ cylinders, 57″ drivers, and 210 pounds boiler pressure. With the booster, tractive force is 106,060 pounds; classmates without the booster rate 90,940 pounds tractive force. No. 4102, below, is of Class AC-4, 4-8-8-2, with 24″ x 32″ cylinders, 63″ drivers, and 235 pounds steam pressure. Built by Baldwin in 1928, its sleek, almost pipeless exterior is a far cry from No. 4004, at the bottom of the page, which is of Class AC-1 and was built by Baldwin in 1909. AC-1 cylinders are 22″ x 30″, drivers 57″, pressure 210 pounds, tractive effort 90,940 pounds, weight 481,200 pounds.

Courtesy Southern Pacific.

Courtesy Southern Pacific.

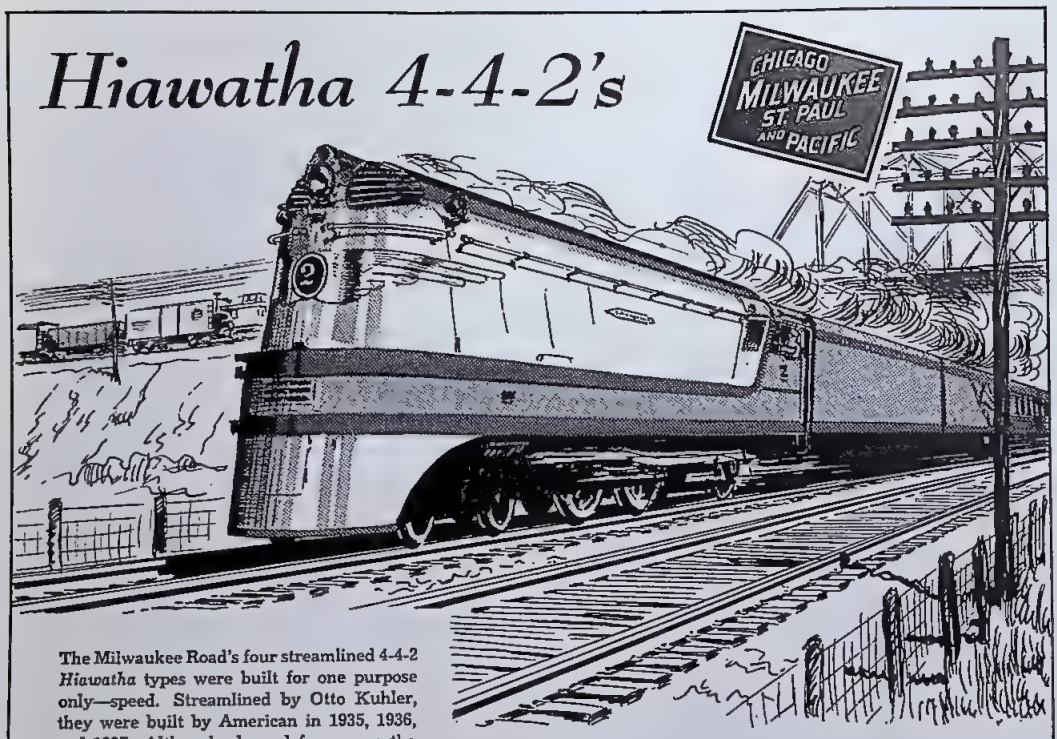


Courtesy Southern Pacific.

Not all SP articulateds have the cab in front.

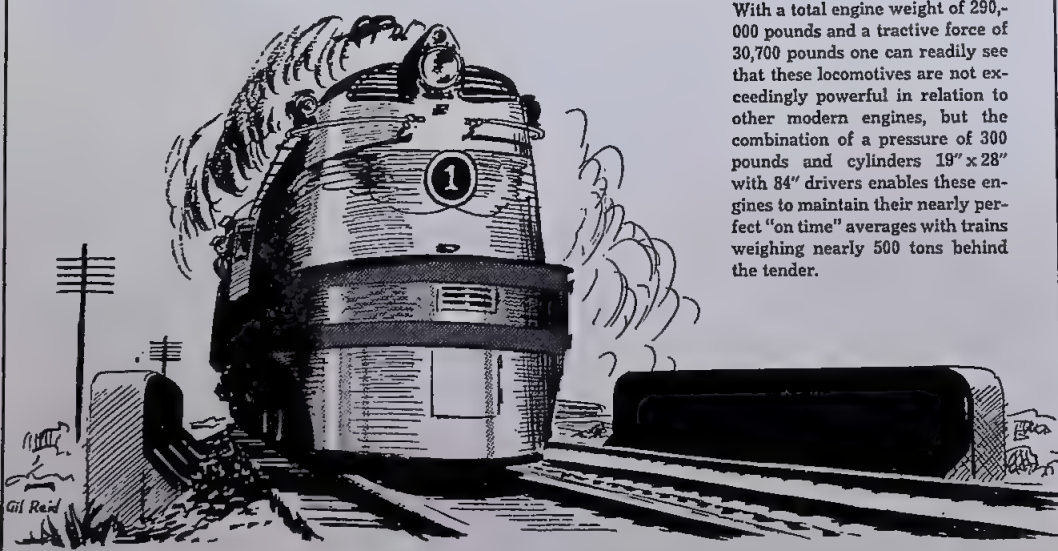
On the opposite page, top, is No. 3803, a coal-burning articulated with the cab in the conventional position. Class, AC-9 (2-8-8-4); cylinders, 24"x 32"; drivers, 63½"; tractive effort, 124,300 pounds. Built by Lima for use on the Rio Grande division, where this photo was taken. On the trestle is another Class AC-7 engine (see page 42) in the California foothills, just east of Auburn. On this page is a passenger train rounding Horseshoe Curve in the Sierra Nevada Mountains of California, with fresh-fallen snow still clinging to the evergreens. Notice how clean the rotary plows leave the right of way; that the snow is deep can be seen from the ditch plowed by the photographer as he climbed to his vantage point. There are many roads using articulateds, but the Southern Pacific is the only one using cab-in-front locomotives. Even with the stack at the far end of the boiler, the smoke makes this one look like an interurban on fire!

Hiawatha 4-4-2's



The Milwaukee Road's four streamlined 4-4-2 *Hiawatha* types were built for one purpose only—speed. Streamlined by Otto Kuhler, they were built by American in 1935, 1936, and 1937. Although planned for use on the *Hiawathas*, they are also used on other regular trains, and can maintain speeds of well over 100 miles per hour.

With a total engine weight of 290,000 pounds and a tractive force of 30,700 pounds one can readily see that these locomotives are not exceedingly powerful in relation to other modern engines, but the combination of a pressure of 300 pounds and cylinders 19" x 28" with 84" drivers enables these engines to maintain their nearly perfect "on time" averages with trains weighing nearly 500 tons behind the tender.



These locomotives are fast-moving tributes to the age of streamlining.

Letters

★ Mother Hubbard locomotives; spirals; miscellany.

About Mother Hubbards.

ANENT the Mother Hubbard article in the February issue: James Milholland of the Philadelphia & Reading brought out a number of famous engines having a wide fire box, usually known as "swallow tails." However, he most certainly was *not* the designer of the Wooten fire box, which was very different from Milholland's, and wider. The Wooten fire box was invented by James E. Wooten, general manager of the road. All the Wooten engines had a center cab and also a rear cab or roof for the fireman. All of Milholland's engines had but one cab, at the rear.

As your article points out, the proper nickname for the Wooten type of engine is Mother Hubbard, and *not* Camelback. The real Camelback was an 0-8-0 by Ross Winans, who built 123 of them for the Baltimore & Ohio and many for other roads, between 1848 and 1858. In 1853 and 1854, Samuel J. Hayes, then master of machinery of the road, had 17 Camelbacks of the 4-6-0 type built for mountain passenger service; in 1869 this type was revived and about 100 additional were built. In all of these Camels the cab was an enormous house entirely on top of the boiler and extending to immediately behind the stack—probably roomy enough to hold 20 persons.

The last Winans Camel was cut up in 1899. Two Ten-Wheeler Camels survive—No. 173, at Purdue University, and No. 217, in the B&O historical collection and shown at the recent New York World's Fair.

Charles B. Chaney.

145 Lafayette Avenue, Brooklyn, N. Y.

More About Them.

THE Jersey Central Atlantics of the 590 series aren't nearly so new as your caption stated ["Mother Hubbard Locomotives," TRAINS, February]. Instead of 1917-1921, they were built in 1901 and 1902 by Alco. The last Atlantics the Central ordered were in 1912. I find the same fault with the caption under the picture of Jersey Central 757, which states that this engine was of a class built from 1928 to 1931. Actually, the 750's date from 1910. Other engines of this same general design were built from 1912 to 1918. The 1918 engines were the last Mother Hubbards purchased by the Central of New Jersey.

The Lehigh Valley, not mentioned in this atricle, had perhaps the widest assortment of Mother Hubbards of any road. There was a time when a conventional locomotive—"deck engines," they call them on the Valley—was a rarity. Today there are only 24 Mother Hubbards left, none in road service.

Among the more interesting of these engines were the only Mother Hubbard Pacifics and Mikados I have heard of. The Pacifics were of two classes: K-1, numbers 2000 to 2007, built by Baldwin in 1905 and 1906, and K-2, numbers 2230 to 2238, built in 1902 and 1903 as Prairie (2-6-2) type engines but rebuilt in 1906 as Pacifics. The K-1 engines were exceptionally large for their day, with 22″ x 28″ cylinders, 76½″ drivers, and 31,700 pounds tractive effort. They were used for several years on such fast trains as the *Black Diamond,* and ended their days in 1923 after some years in local passenger service.

The Mikados (Class N-1), of which there were 47, were built from 1903 to 1907 and bore numbers 200 to 246. They were used on coal drags and for pusher service.

Several common types of locomotive originated on the Lehigh Valley, although credit is given to the road generally only for the Consolidation. Actually, the Decapod, Mikado and Pacific types were also first used on the Lehigh.

The first Consolidation was built by Baldwin in 1866 for handling heavy coal trains in the anthracite region, and this development was followed a year later with the original Decapod. This locomotive, the *Bee*, had 20″ x 26″ cylinders and 48″ drivers, but because of the long rigid wheelbase did not prove entirely successful. She was rebuilt a few years later as a 2-8-2—the first Mikado. This engine was scrapped before the engines built for the Imperial Railways of Japan and to which the name Mikado was first given were even designed.

Likewise, the first Pacific antedated by many years the New Zealand engine to which

the name was first officially given. Constructed in 1886 at the Lehigh Valley's Wilkes-Barre Shops, LV No. 444 was the most powerful passenger engine built up to that time. Incidentally, she, too, was a Mother Hubbard.

William P. Headdon.

17 Beekman Terrace, Summit, New Jersey.

[Construction dates, as supplied by the railroad companies themselves, often refer to a complete rebuilding although parts of an earlier version of a locomotive are used.—*Ed.*]

--- and More.

As your article in February TRAINS stated, the Mother Hubbard type of locomotive originated on the Reading Railroad back in the early eighties. As for the origin of the unusual name, the cabs of these locomotives resemble "Mother Hubbard's" cupboard, hence the cognomen.

G. A. Doeright Jr.

355 East Wood Street, Youngstown, Ohio.

Looping for Altitude.

I READ with great interest the article "Canadian Spiral Tunnels" [December TRAINS]. This brings to my mind another rare but fascinating feature of American railroading, the use of loops to gain altitude. I know of a number, perhaps topped in fame by the now abandoned Colorado Central narrow gauge line between Georgetown and Silver Plume, Colorado. The railroad followed westward

Looping the loop: a relic of earlier days.

This is the now-abandoned loop on the Denver & Salt Lake referred to by E. J. Easton in his letter on loops. The trains went through the tunnel, looped around a spur of the mountain; and crossed over their own tracks by means of the trestle on which the man is standing, 11,111 feet above sea level. This is the high end of the tunnel, which caved in at the opposite end. It was abandoned in favor of Moffat Tunnel.

Linn H. Westcott.

up the valley, swung to the right over a bridge and again to the right over itself and the river. It then made an S curve just above.

A few miles away on the Denver & Salt Lake, above the Moffat Tunnel, was another loop. This line went through a tunnel, swung in a clockwise circle, then crossed a trestle which was on the ground directly above the tunnel. The Morenci Southern in Arizona also had a beautiful loop like the Georgetown line.

Loops still in operation include the Tehachapai Loop of the Southern Pacific, one on the Western Pacific near Quincy, California, and one on the Denver & Rio Grande Western's Tintic branch in Utah.

Sometimes a horseshoe curve or S curve has been called a loop, but I'd like to know if there are more real corkscrews like those above in the United States or Canada?

E. J. Easton.

Toledo, Ohio.

Railroad Commemoratives.

ALMOST every individual of any note has by now succeeded in getting his likeness on a United States postage stamp. The railroad, and especially the locomotive, also has been represented on stamps but not to any great extent in recent times.

I think it is time that a special series of stamps be dedicated to the locomotive, and this thought can be backed up with any number of good reasons. In the first place, the machine is almost a symbol of the development of the United States. Second, as a subject of interest, locomotive stamps would command more attention than almost any other subject, not only on the part of railfans and stamp collectors, but by people all over the world. Incidentally, in this lies a substantial profit from the sale of stamps that will never be used postally.

I would suggest a series of stamps, their width twice their height and with a line of description included, somewhat as follows:

1. The first locomotive in America.
2. The first locomotive *built* in America.
3. The famous *General* of Civil War days.
4. The two engines that met at Promontory Point.
5. The famous "999" which established the speed record.
6. A Shay geared engine. This is a distinctly American contribution and features the lumber industry.
7. The "Casey Jones" engine. This American folksong is too important to ignore.
8. The largest freight engine yet built in America, Z-5 of the Northern Pacific.
9. The P RR. 6-4-4-6 introduced at the Fair.
10. A Mother Hubbard engine featuring the adaptation of the locomotive to anthracite coal and distinctly American in design.
11. As an alternate, or for the ½-cent stamp, a modern streamlined Diesel engine.
12. Possibly the interurban should not be forgotten.

Here you have a representative history of the locomotive in America, and if it would permit the Railroad Historians or some other competent authority to cooperate in producing the series our government will have issued a set of stamps with universal appeal that will put extra thousands into the treasury. Write your Congressman about it!

Courtland Christiani.

Surabaya, Java.

New Railroad Book

HISTORY OF THE WISCONSIN CENTRAL, by Roy L. Martin. 169 pages, 6" x 9". Published by Railway and Locomotive Historical Society, Baker Library, Harvard Business School, Boston. To members, $1; to non-members, $2.

THE story of the Wisconsin Central, now operated as part of the Soo Line, is the typical story of hundreds of Midwestern and Western railroads built in the latter half of the nineteenth century. It is the story of a railroad pushing into the wilderness, with towns and population following rather than preceding the railroad. For this reason the *History of the Wisconsin Central* will be of interest even to those who have not until this minute heard of the road.

As is usual with Society publications, the book is replete with names, dates, and places to justify its serious historical purpose. But it is also well spiced with incidents from early construction and operation which make of it a readable narrative. The book not only tells of the charters and financing, the construction companies and the officers, but in vigorous detail, smelling of steam and cylinder oil, of the operations, the locomotives, and the line improvements that were necessary to cope with growing traffic. The intriguing tale of the Northern Pacific overlordship and of the entrance to Chicago are included with more facts than ever before available.

Neatly bound in a paper cover, legibly printed, and exceptionally well illustrated, here is a book you will enjoy owning.

The Month

★ Largest locomotive title to Union Pacific's new 4-8-8-4's.

★ Title of largest locomotive (now held by Northern Pacific Yellowstone articulated type, see pages 2 and 35) will go to the Union Pacific with delivery of 15 4-8-8-4's just ordered from Alco. Engineered for a maximum speed of 80 miles per hour, the new freight engines will have in excess of 7000 horsepower, will weigh 1,187,500 pounds with tender, and will be 133 feet long over engine and tender.

★ Send notices of fan trips before the first of the month preceding date of issue or they cannot be included in TRAINS.

Fan Trips: April 27, over main line, Bergen Cutoff, Graham Line, Wyoming and Jefferson divisions of the Erie, leaving Jersey City terminal 8:45 a.m. Sponsored by New York Division, Railroad Enthusiasts. Fare, $3.75. Reservations, Edward A. Hansen, Box 63, Packanack Lake, New Jersey.

May 4, from Los Angeles, California, over the Santa Fe Kite Route, leaving Union Terminal 8:30 a.m. A request repeat of 1938 tour. Details from Railroad Boosters, Room 518, Pacific Electric Building, Los Angeles.

June 14-15, from San Francisco over Northwestern Pacific and California Western Railroad & Navigation Company to Fort Bragg in the redwood country. Tentatively, leave Ferry Building June 14 at 12 noon. Details from Northern California Railroad Club, P. O. Box 47, Mill Valley, California.

June 15, from Los Angeles over the Pacific Electric's Orange Empire trip, discontinued for regular service in 1932. Leave 9 a.m. For details inquire of Railroad Boosters, Room 518, Pacific Electric Building, Los Angeles.

★ Trucks of more than three-ton capacity, the ones which compete with the railroads for intercity traffic, pay total taxes of $30,000,000 annually, while railroads pay $35,000,000 annual tax bill for highway purposes alone, in addition to taxation for general purposes and also in addition to maintaining their own right of way.

★ *The Southerner*, new New York-New Orleans Diesel streamliner of the Southern, will be in service about the time you read this. It will run via Atlanta and Birmingham. About April 15 the Diesel streamliner *Tennessean* will replace the *Memphis Special* between Washington and Memphis.

★ Northvale, New Jersey, threatened with abandonment of its Erie (Northern of New Jersey) station, has offered to negotiate for the maintenance of the station at borough expense.

★ Typical of many similar moves is a recent change from automatic train stop to cab signaling by the Rock Island. About 1925 quite a push was made to force automatic train stop on all main lines. The present trend is toward cab signaling without the stop, both because of lower maintenance costs and because cab signals give all the advantages and safety of train control. In practice it has been found that if the engineer has all the information right in the cab he will act on it.

★ Missouri Pacific is now operating a portion of the abandoned Port Isabel & Rio Grande Valley, strengthening its position in the valley. MoPac has also acquired two terminal railways in St. Joseph, Missouri, the Union Terminal Railway and the St. Joseph Belt Railway.

★ Passenger service on the Washington & Old Dominion Railroad has been discontinued. This line runs from Rosslyn, across the river from Washington, D. C., to Purcellville, Virginia, 45 miles.

★ Since the Santa Fe put its first Diesel-electric freight locomotive in service ["The Month," Mar. '41] a month ago, the Southern and Great Northern have also ordered power of this type and Santa Fe has ordered two more. Steam locomotive orders keep up, under spur of Defense, with 25 4-8-4 freight for Grand Trunk Western from Alco, eight 4-6-4 for Chesapeake & Ohio from Baldwin, four 2-8-2 for Detroit, Toledo & Ironton from Lima.

★ Approximately one-fourth of all passenger cars and three-fourths of all Pullman cars are now air-conditioned. Since many railroad-owned passenger cars are used in suburban service, this means that a majority of all main line service is in air-conditioned equipment.

★ Pipe lines are, on a ton-mile basis, greater competitors of the railroads than are truck lines. During 1939, I. C. C. figures show, pipe lines transported 11.97 per cent of the country's total ton-miles and trucks only 8.47 per cent. The danger to railroads in truck competition is that it diverts mostly high rate traffic, leaving the low rate bulk products for the rails. The railroad rate structure [TRAINS, Nov. '40] is based upon average income from all types of traffic.

★ Eugene Goosens, conductor of the Cincinnati Symphony Orchestra, is such a railroad fan that his contract is said to include a clause forbidding him to ride the engine cab while on tour.

★ The I. C. C. postponed for 40 days the abandonment of the narrow gauge D&RGW line from Antonito, Colorado, to Santa Fe, New Mexico. Reason, introduction of a Senate resolution asserting importance of the line for Defense.

★ On the back cover is locomotive 1700 of the Reading Company pulling a string of freight across the Lehigh Valley tracks. The photo was taken at the Union Station in Bethlehem, Pennsylvania. Here railroads pick up important cargos of steel products from the Bethlehem Steel Company.

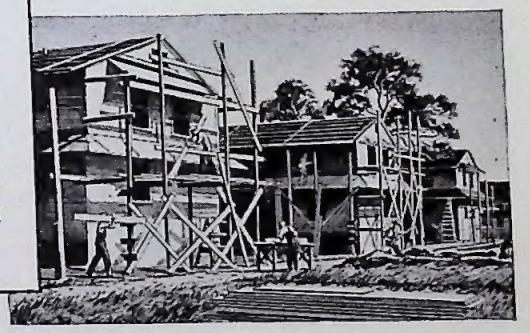
RAILROADS ARE READY

A factual report to the American people

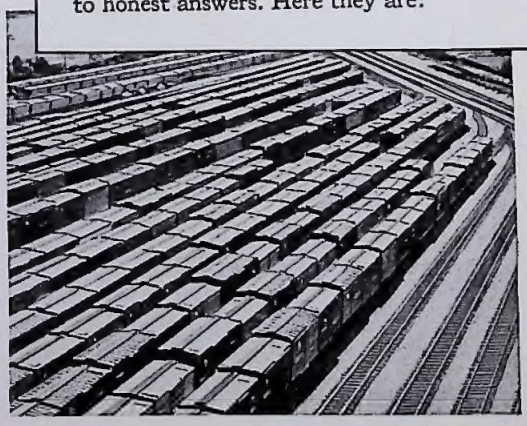
What if the country is called upon to meet a real emergency this year—or next? How will our rail transportation system meet its responsibilities? How does the American railroad performance of 1941 compare with that during the World War?

A thoughtful public, facing a dangerous world situation coolly and realistically, is entitled to ask such questions—and equally entitled to honest answers. Here they are:

Bigger locomotives pull more freight. Unqualified statements that railroads have fewer locomotives and cars than in 1917 are meaningless. Today's locomotives average half again more powerful. Today's better freight cars hold a fifth more and travel 64% faster.



Housing a million men. For the new army camps, the railroads delivered nearly two billion board feet of lumber —75,000 carloads—in 6 recent months. Work was never held up because of any railroad failure to deliver materials. Cars were loaded and unloaded promptly by shippers and contractors. There was not the least interruption of regular rail traffic.



It can't happen again! In 1917 ports and terminals were congested and transportation was slowed down because freight cars were used not to move goods but to store them. On just one order, 40 miles of cars clogged the tracks for weeks until a shipyard got ready to unload them. That won't happen again because close teamwork by the railroads, shippers and government agencies now keeps cars moving and gets them unloaded promptly.

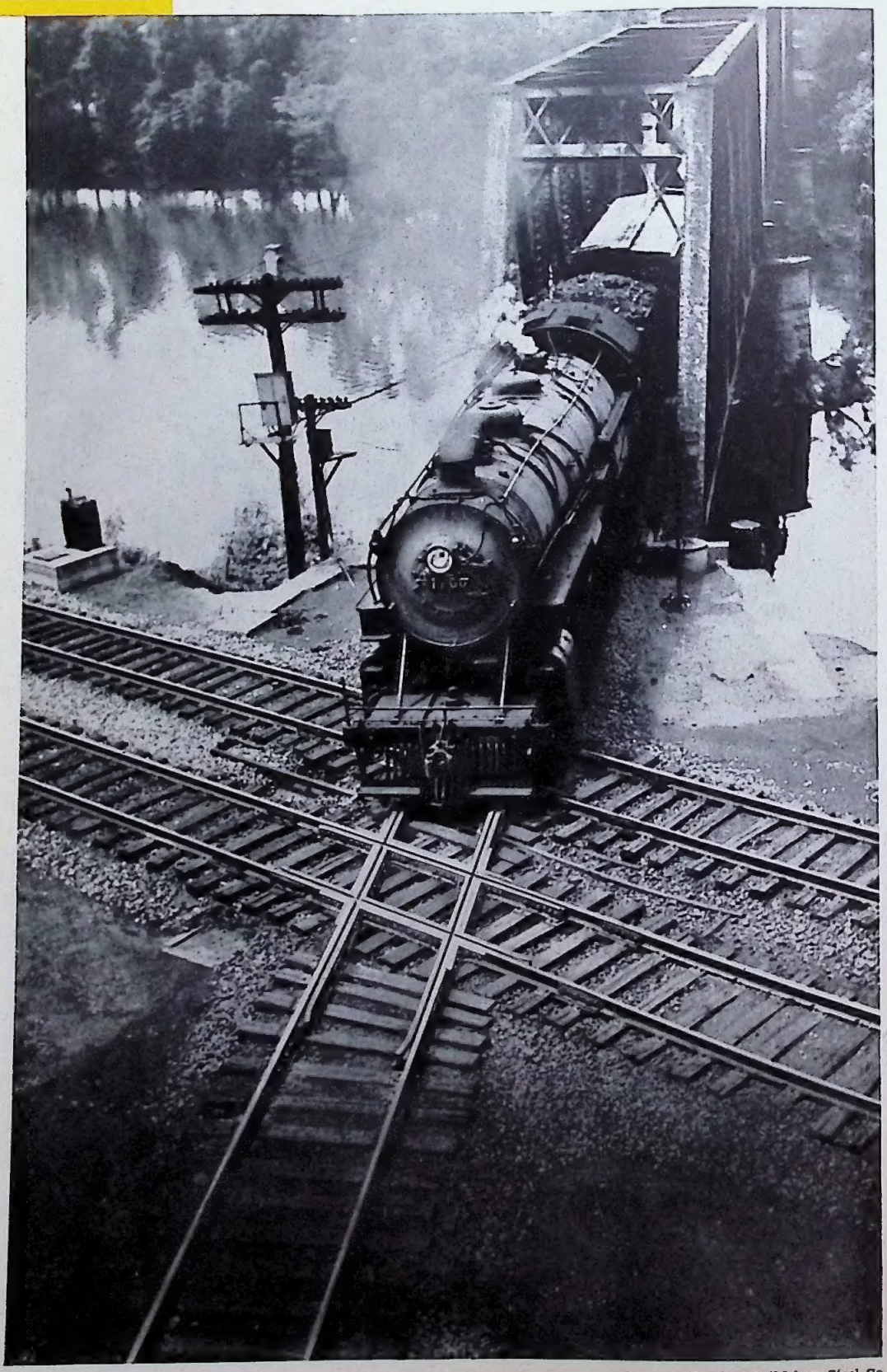
Railroad efficiency more than doubled. That is the net result of larger engines and cars, longer trains, faster schedules, better signals, streamlined yards and greatly improved operating methods. In the peak year of 1929, the railroads hauled 8¼ million more carloads of freight than they did in 1918 although they had 60,000 fewer cars and 5,000 fewer locomotives.

Whatever the demand—America's railroads, despite the hard times of recent years, are keeping fully prepared to meet the nation's transportation needs.

ASSOCIATION OF AMERICAN RAILROADS, WASHINGTON, D.C.

P.S. PERFECT SHIPPING A national campaign each APRIL to promote good packing, secure loading and careful handling of ALL shipments—sponsored by Shippers Advisory Boards. Avoid loss and damage. We can't afford to waste our national resources.

Trains



See page 50.

Courtesy Bethlehem Steel Co.